



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

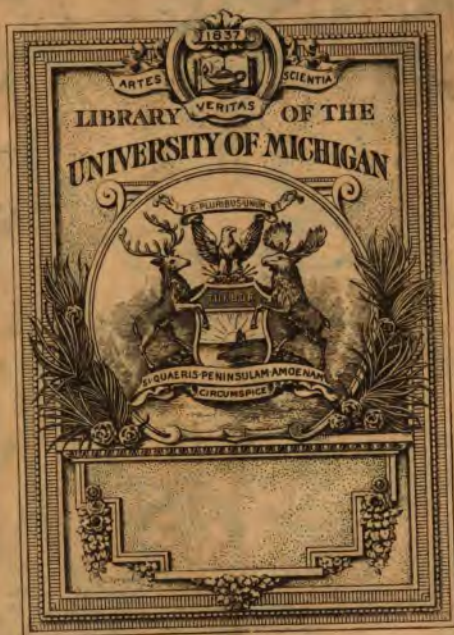
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



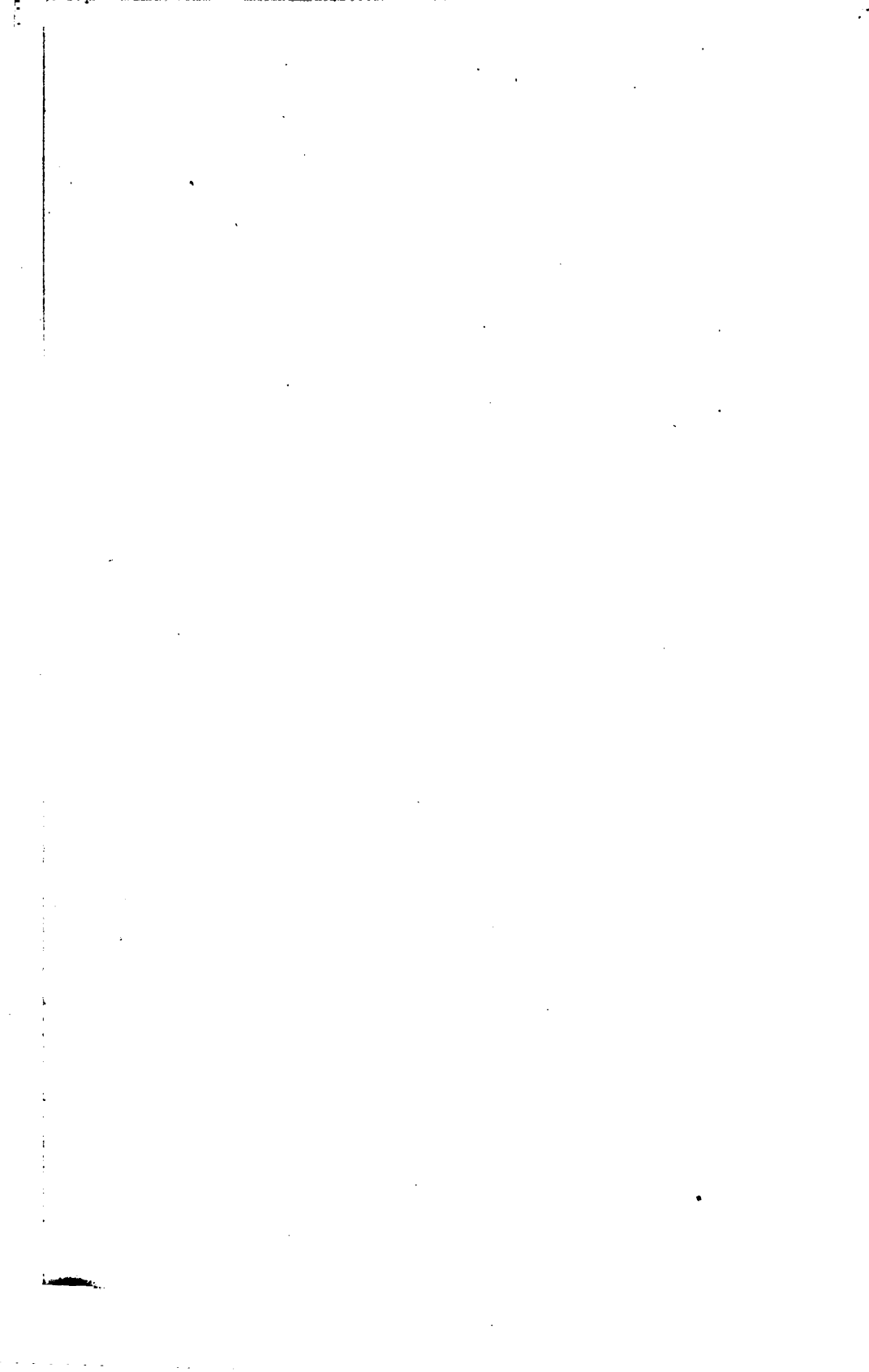








HJ  
9161  
.AZ  
U5  
1892



# SPECIAL

41859

## CONSULAR REPORTS.

---

### Volume VI.

---

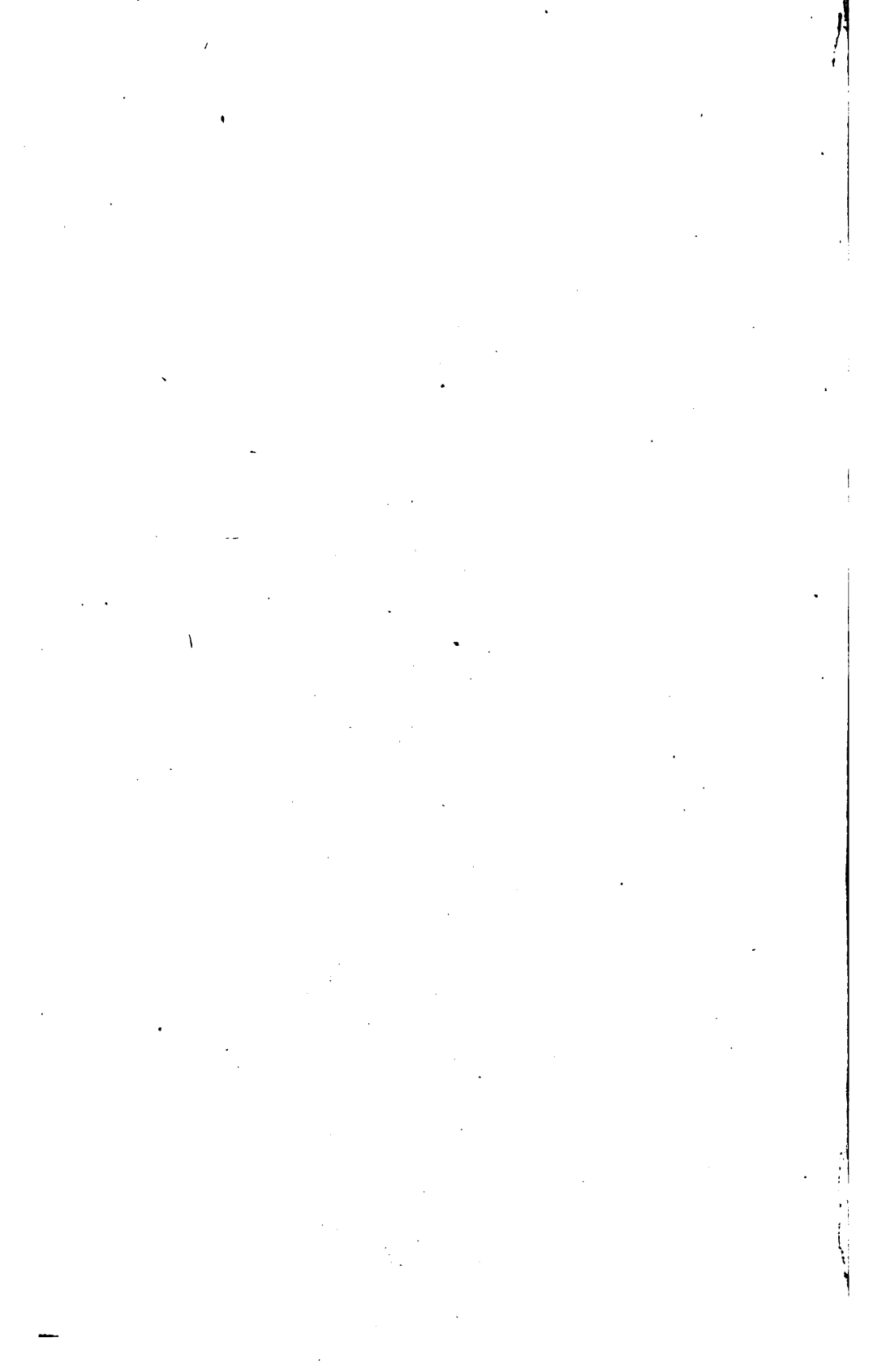
#### ARRANGEMENT.

	Page.
COAL AND COAL CONSUMPTION IN SPANISH AMERICA.....	1-86
GAS IN FOREIGN COUNTRIES .....	87-346
INDIA RUBBER:	
THE RUBBER TREE .....	349-447
MANUFACTURES AND TRADE.....	449-588



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1891 AND 1892.





SPECIAL CONSULAR REPORTS.

INDIA RUBBER.

U.S. Bur. of foreign and domestic commerce  
(Dept. of commerce.)

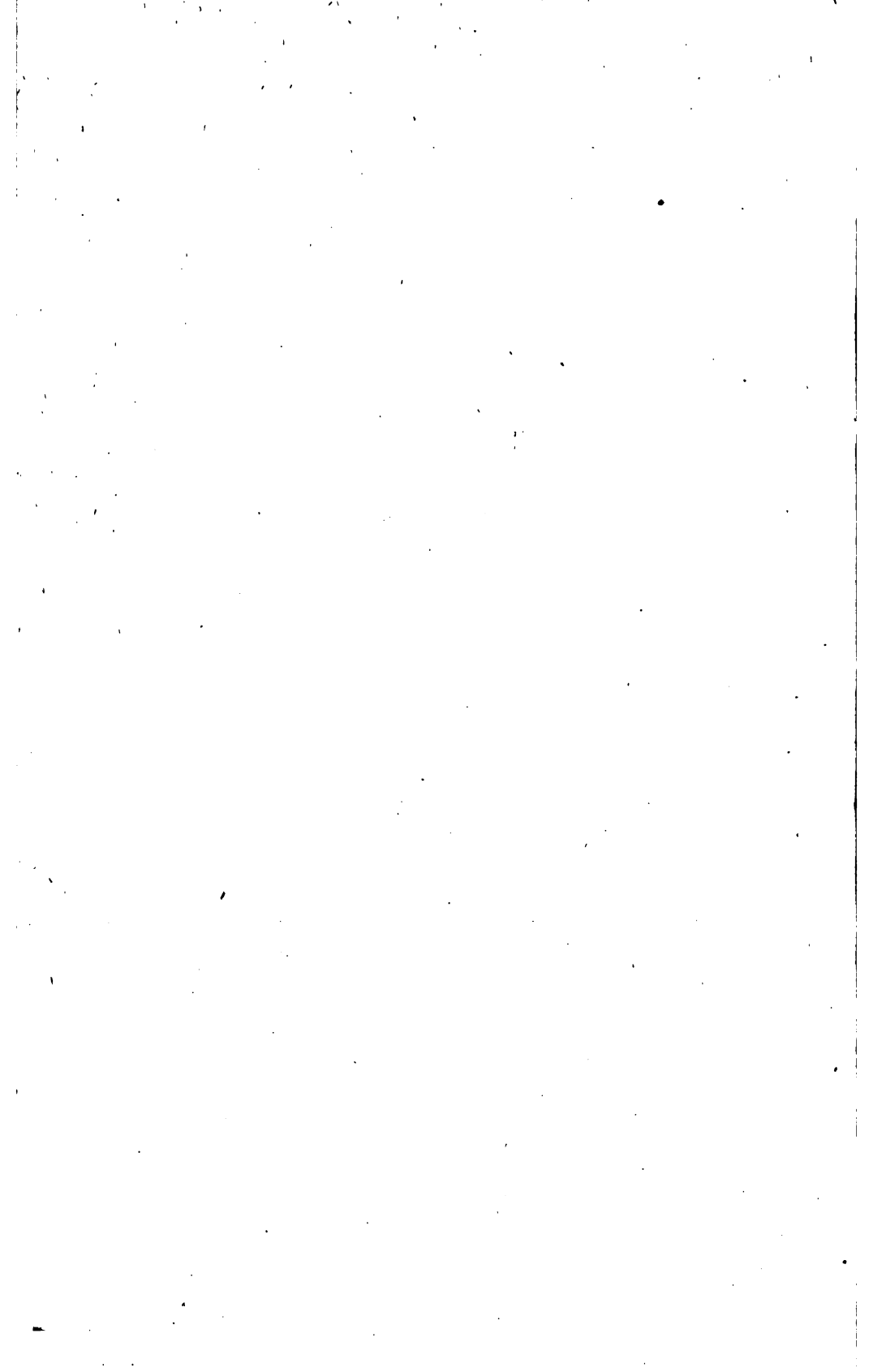
REPORT FROM THE CONSULS OF THE UNITED STATES, IN ANSWER  
TO A CIRCULAR FROM THE DEPARTMENT OF STATE.

ARRANGEMENT.

	Page.
PART 1. The Rubber Tree .....	349
PART 2. India Rubber Manufactures and Trade ....	449



WASHINGTON:  
GOVERNMENT PRINTING OFFICE,  
1892,





Rec 1255. 12-18-29 A.Y.M.

---

PART I.

---

THE RUBBER TREE.

---



SPECIAL CONSULAR REPORTS  
ON  
INDIA RUBBER AND MANUFACTURES OF, ETC.

I. THE RUBBER TREE.

CONTINENT OF AMERICA.

MEXICO.

REPORT BY CONSUL-GENERAL GUENTHER, OF MEXICO CITY.

MEXICAN DUTIES ON RUBBER.

The duties per kilogram, Mexican currency, are as follows, taken from the Mexican "Arancel de Aduanas:"

Rubber in strips.....	\$0.10
Boots and shoes, all sizes and shapes.....	.48
Rubber clothing.....	1.60
Rubber prepared for the use of dentists.....	2.00

Caoutchouc, or India rubber, is produced to some extent in the States of Michiocan and Colima, in this consular district, and is in Mexico, a product of a species of tree called "Hule," also called "Algualguitl," which trees belong to the family of "Euphorbiaceæ," comprising more than five hundred different varieties.

India rubber, up to the present time, is extracted in Mexico by the Indian in the most primitive and unsystematic fashion. They make an incision in the bark of the trees, from which soon after begins to flow a juice resembling milk. This juice is collected in receptacles made of bark or in earthen vessels, and afterwards the same is boiled down to a proper consistency, in order so as to form balls of gum, which the Indians take to market for sale.



The amount of crude rubber exported from the Republic is as follows, according to the latest statistics published by the Mexican Government, from the year 1887 to 1888:

Germany .....	\$12, 632. 00
Colombia .....	1, 757. 00
Spain .....	525. 86
United States .....	153, 004. 20
France .....	426. 00
England .....	1, 040. 00
Total (Mexican currency) .....	169, 385. 06

The question of cultivating the India rubber tree has already been agitated considerably by private parties as well as by the federal authorities of the Republic of Mexico. The supply of India rubber in the accessible regions is considerably diminishing, while the demand for it is steadily on the increase. This is due to the fact that the Indians in order to gain as much of the juice as possible at one time, often strip the forest trees yielding the gum entirely of their bark, or make such frequent incisions that the trees soon die. In fact they are constantly destroying these valuable trees which by rational treatment would yield right along. Practical experiments with the cultivation of these trees have been made in Mexico by various intelligent persons in different parts of the country, notably in the district of Soconusco, State of Chiapas, and in the State of Vera Cruz. These experiments, according to the testimony of the Mexican officials in charge of the Bureau of Agriculture, have demonstrated beyond doubt that this industry can be established with entire safety as to warranting excellent results. There is one case authenticated in Soconusco where three young forest trees were transplanted which now have yielded for more than thirty-five years. The diameter of the trunks of said trees are now about 7 feet, and the diameter of the branches at their greatest expanse is more than 80 feet. Each of these trees yields annually more than 50 pounds of gum. It has been established that the most favorable time for extracting the juice is in the rainy season, as then the yield is greater, and tapping the trees then is not so hurtful as in the dry season.

To gain an idea of the profitableness of the culture of rubber-yielding trees, the following conservative estimate may prove valuable. It is made upon a basis of 10,000 trees, planted about 23 feet apart (a distance of 15 feet between the trees is considered the minimum):

Cost of 160 acres of land, 40 cents per acre .....	\$64. 00
Clearing and breaking the ground, at \$4.50 per acre .....	720. 00
Planting the trees, at \$2.25 per acre .....	360. 00
Cultivating the soil five times in six years, at \$3.50 per acre .....	1, 750. 00
	<hr/>
	2, 894. 00

In the sixth year these trees yield 6 pounds of milk each, or for the 10,000 trees 60,000 pounds of juice. The maximum of water contained in this juice is 56 per cent, so that the rubber obtained would be—

26,400 pounds, at 30 cents per pound.....	\$7,920.00
Labor for collection and evaporation, at '3 cents per pound.....	\$792.00
Total expense up to date, six yeasas after purchase .....	2,894.00
	<hr/> 3,686.00

Leaving a net profit at the end of the sixth-year of..... 4,234.00

The profit of the seventh year would be at least \$7,920 less \$792, or \$7,128.

Of course, owing to the constantly increasing yield of the trees as they grow larger, this profit will be increasing for a number of years.

It will be readily seen that the cultivation of these trees offers splendid inducements. The question of supplying the necessary labor is hardly to be taken in consideration, as the trees require little if any attention. The medium temperature of the region in which these trees prosper best is above 87° F. during the hot season. The plants can either be raised from the seed in nurseries and afterwards transplanted, or young trees be transplanted taken from the forests. It is stated that the culture of these gum trees can profitably be combined with the raising of cotton, experiments having demonstrated cotton will do admirably under the same climatic conditions that are favorable to gum trees. These trees are found in greater or lesser abundance in the whole coast region of Mexico, on the Gulf coast, and on the Pacific.

I have not been able to learn whether American capital is employed in rubber gathering or trading in my district, but I believe there is not.

Regarding the manufacture of rubber in my district, rubber is not manufactured into any articles of commerce, nor do I believe that it is in any part of the Republic. The exact amount of the importation of manufactures of rubber in this district can not be given, but the United States imported during the year 1888 into Mexico, of rubber goods, 3,146 pairs of boots and shoes; as far as the imports from other countries are concerned, I could not learn that. Crude rubber is exported from this country free of duties, but duties are imposed upon foreign manufactured rubber imported into this country.

American rubber goods are regarded equal to those imported by any other country, and the suggestions that I would offer to American manufacturers of rubber desirous of extending their trade in this country are that they send men to this country who are thoroughly conversant with the language and customs of the country, who are polite and in every respect good business men, and let them solicit trade in Mexico in the same business-like manner they would adopt in the United States in order to sell their goods.

RICHARD GUENTHER,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL.

*Mexico City, October 24, 1890.*

## CERRO DE PASCO.

REPORT BY CONSULAR AGENT McNULTY.

1. Caoutchouc is not a product of this district, but it is found some 45 leagues northeast from this city in the Chuchurra and Palcazu regions on the extremes of the departments of Loreto and Iunin.

2. The yield is from trees which are found at about 1,500 feet above sea level. I do not know the botanical names, but there are two species of the tree, called, in the aboriginal language, one "santonja," and the other "zarenga."

3. The method of conducting the business of rubber gathering is certainly very rude and destructive; they cut down the trees and then cut gutters in the bark and allow the crude rubber to ooze out into holes in the ground, instead of tapping the trees, as we do the maple tree to abstract the juice for sugar-making, which can be done. Whole tracts of caoutchouc forests are laid waste in this way and no attention paid to the preservation of the tree. The gathering is mostly done by Brazilian Portuguese, who owe no responsibility to any person, because the territory does not belong to Brazil, but to the Republic of Peru.

4. I am not aware that any American capital is employed in the business except, indeed, that there are some American purchasers of the crude rubber at the city of Pará, which is the principal port for exportation of the article.

5. I do not know the amount of crude rubber exported.

6. I understand that there is a heavy export duty on the crude rubber, but do not know the amount.

7. There are fears expressed of the failure of the natural supply of rubber, unless some steps are not taken to prevent the wholesale devastation going on.

8. I am not aware that any experiments have been made in the cultivation of the trees, but I am assured that they can be cultivated and that they also produce saplings from the stumps after the trunks are cut down; but as they belong to a low, wet, and swampy region of the torrid zone, it is supposed they could not be cultivated to any advantage outside of a similar region.

Under this heading I will say that there are no manufactures of rubber in this district; the place is so peculiarly situated on the highest ridge of the Cordillera, nearly 15,000 feet above sea level, and forms an equal divide between the Pacific and the Atlantic oceans, that we see no rubber here except the manufactured article that comes in the shape of clothing through the port of Callao.

The American manufacture is considered the best.

M. C. McNULTY,  
*Consular Agent.*

UNITED STATES CONSULAR AGENCY,  
*Cerro de Pasco, May 25, 1891.*



## FRONTERA.

## REPORT BY CONSULAR AGENT HOFF.

## CAOUTCHOUC AND CRUDE RUBBER.

1. Caoutchouc or India rubber is a product of my district.
2. It is yielded by trees, and not by vines.
3. Rubber gathering is very tedious and slow work. Indians, after making an incision in the bark of a tree, use a cup (jicara) to gather the milk-white juice, and when said cup is full they empty its contents into a can and replace the cup under the incision, and continue this operation as long as the tree gives any juice.
4. There is no American capital in rubber gathering or rubber trading in my district.
5. In the quarter ended September 30, last, an amount of \$578.62 worth of rubber has been shipped to New York from this State, and I am confident that ten times as much could have been shipped were it worked on a larger scale, and were the gatherers better paid. Said article passes through the hands of too many middlemen, and the Indians who work so much to gather it do not get the value of their work, and therefore do not trouble or devote themselves much to rubber gathering. By cultivating corn around their houses they suffer less hardships and get better pay.
6. There is no export duty on crude rubber.
7. There is no fear expressed of the failure or early decrease of the natural supply of rubber; there are thousands of trees in this State.
8. I know of two experiments in the cultivation of rubber trees, one by Mr. Antonino Buhres, of San Juan Bautista, and the other by Mr. Louis Martin, of Montecristo.
9. Both of these experiments have proved a failure; it is supposed that it was for the want of proper care.
10. Rubber is susceptible of cultivation, and its cultivation would undoubtedly be profitable, but manufacturers of the United States must unite and try to get all they can out of this district and pay the gatherers the full value of their work, only deducting therefrom the shipping expenses, freights, and small commission of the purchaser.

## MANUFACTURES.

11. Nothing is manufactured out of India rubber in my district.
12. As nothing is manufactured, nothing is exported to other countries.
13. There are no representative manufacturers.
14. No crude rubber is imported in my district, and if any was imported the duty would be 10 cents per kilo.
15. All the manufactured rubber goods sold in my district are imported from the United States.

16. The value of the rubber goods imported from the United States in the shape of clothing, boots, and shoes only amount to about \$2,000 a year.

18. American rubber goods are well regarded in comparison with those of other countries.

19. As I have said above, manufacturers must unite and pay the gatherers the full value of their hard work and do away with all middlemen. This is the only way to extract a large quantity of crude rubber from this district.

MICHAEL GIRARD,  
*Consular Agent.*

UNITED STATES CONSULAR AGENCY,  
*Frontera, November 7, 1890.*

---

## SAN BENITO.

*REPORT BY CONSULAR AGENT QUINBY.*

### RUBBER GATHERING.

India rubber is one of the natural products of the coast section of this department, and is extracted from trees which are found growing on the low lands, and which sometimes reach a height of 80 feet and a diameter of  $2\frac{1}{2}$  to 3 feet, the botanical name of which I do not know.

The method of extracting the sap is of a most destructive nature, the almost universal custom being to fell the trees, and the bark being slit at short distances the full length of the tree the sap is gathered in vessels or large leaves placed below to receive it. It is then placed in the sun to dry, and this process completed it is ready for market.

There are no Americans engaged in gathering or buying rubber in this section, and so little remains that no person of capital would be warranted in making it a special business.

The exports are steadily decreasing from year to year and last year only about 60 hundredweight were sent from here to the United States as against 116 hundredweight for 1888 and 256 for 1887. This falling off is owing, no doubt, to some extent, to the low prices which ruled last year. The rubber from here is nearly all sent to New York, only a small quantity being sent to Europe.

There is no export duty.

### RUBBER CULTIVATION.

As I have intimated above, the natural supply of rubber has been almost exhausted by the destructive method employed in extracting the sap, but all experiments so far made in the cultivation of the tree have proved successful. It is a hardy, quick-growing tree, but does not reach a size large enough to be tapped (as it should be) for from ten to

twelve years, and the variety is said to be of inferior quality (whether or not its inferiority is owing to the methods employed, I do not know). Successful experiments are reported to have been made with "Para" rubber further south in Central America, and if the report is true, I have no doubt that it can be grown here as well, the climate and conditions being similar. The only plantation of importance in this vicinity of cultivated rubber is of about 25 acres, the trees being now about 5 years old, looking well, and give promise of becoming very profitable to the owner within a few years.

There are no manufactures of India rubber in this department.

#### IMPORTS OF RUBBER GOODS.

Rubber goods are imported mostly from the United States, but the figures are not at hand to show the exact amount of imports.

The duties on all imported rubber goods are heavy.

So far as I can learn, rubber goods from the United States are equal to any, except perhaps the higher grades of waterproof coats or coverings for horseback riding.

A class of goods are needed here that will withstand heat as well as water. The rainy season is also the warmest season, and common grades do not last more than two or three months, the heat affecting them more than the water. It is necessary also that they be *waterproof*, for in this climate it frequently happens that as much as 2 or 3 inches of water falls in a storm of as many hours, and in such storms ordinary light rubber coats are useless. The kind of covering most in demand is the "manga," a large rectangular piece of waterproof cloth with a hole in its center to pass the head through, and is used in horseback riding. It should be long enough to reach to the feet, and thus completely cover the rider. Rubber boots are never used, and rubber overshoes are seldom seen, though they might find sale if once introduced.

F. A. QUINBY,  
*Consular Agent.*

UNITED STATES CONSULAR AGENCY,  
*San Benito, November 11, 1890.*

---

#### TUXPAN.

REPORT BY CONSUL DRAYTON.

#### CRUDE RUBBER.

Caoutchouc or India rubber is a product of this district. It is yielded by trees, native name being hule, botanical *Siphoria Cahuchu*.

A spiral channel is cut around the tree from top to bottom from the right, an exact cut is made around to the left so that both cross each

other, making a drainage to the bottom. The milk is placed in an earthenware vessel and whipped with a weed called coyuntla, which is an astringent and causes the milk to curdle, making the crude rubber.

No capital is employed in rubber gathering, as the natives bring same to the merchants as there are not any rubber farms in this district, the trees being scattered all over this section of the country. There are two American houses in this city that buy rubber, but all dealers buy and ship to New York.

The amount of crude rubber exported from the district in the past two and a half years was 93,181 pounds, with a value of \$55,908. The entire product went to New York. There is no export duty on rubber.

Fears are expressed of the failure or early decrease of the natural supply of rubber, and steps are being taken to protect the trees.

Experiments have been made in the cultivation of rubber trees, plants, or vines, but not to any great extent.

On the coast rubber has proved a failure, while in the interior on upper lands it is a success.

The rubber tree is susceptible of cultivation and its culture would be profitable, but unfortunately the natives have not patience to wait eight or ten years until the trees commence to yield.

#### MANUFACTURED RUBBER.

There are no rubber goods manufactured in the district. There are no importations except manufactured rubber.

Rubber boots, shoes, coats, and toys are imported from the United States; value unknown.

A very heavy duty is imposed upon imported rubber goods. American rubber goods compared with those of other countries are equal to any, if not superior.

I would suggest, for the benefit of American rubber manufacturers desirous of extending their trade into this district, the forwarding an agent conversant with the Spanish language and bringing a full set of samples.

JOHN DRAYTON,  
*Consul.*

UNITED STATES CONSULATE,  
*Tuxpan, October 25, 1890.*

---

#### YUCATAN.

REPORT BY CONSUL THOMPSON, OF MERIDA.

I have completed my investigation upon the rubber tree and its growth in Yucatan.

The result is not especially encouraging to those who expect to develop the rubber industry within this district.

The trees grow over a large extent of territory, but they grow sparsely and the soil generally is not conducive to their establishment on a scale commercially profitable of large plantations planted and cared for as elsewhere.

EDWARD A. THOMPSON,  
*Consul.*

CONSULATE OF THE UNITED STATES,  
*Merida, April 19, 1891.*

## CENTRAL AMERICA.

### COSTA RICA.

REPORT BY CONSUL MACKEY, OF SAN JOSÉ.

The India rubber of Costa Rica is extracted from the *Castilloa elastica*, which is found on the coasts of the country. The supply of rubber in the easily accessible regions is almost exhausted, but is said to abound in the mountains.

I can not describe the method of gathering the rubber, for San José is not situated in the rubber districts, and no one here can give me information in regard to this industry.

It is certain, however, that the methods used have been so improvident and destructive as to almost extinguish the sources of supply in those regions which formerly produced the greatest quantity of this valuable article of commerce.

The Government has made earnest efforts to stay this improvident waste and to repair the losses already incurred by inflicting a penalty upon those who destroy the rubber trees and granting rewards to those who cultivate them.

The laws on the subject were too long delayed or too imperfectly executed to prove effectually preventive of the destruction of the supply, but they have resulted in the planting of trees in various parts of the Republic. It is undoubted that rubber is susceptible of cultivation, and that its culture will be attended with profit; but the plantations of Costa Rica are very limited and too recent to have produced as yet convincing results.

The amount of crude rubber exported in 1889 was valued at \$6,317, being but little more than one-half the amount exported during the preceding year.

There is an export duty of one-third of a cent per kilogram on rubber in Costa Rica.

No American capital is employed here either in rubber-gathering or rubber-trading.

All Costa Rican rubber is exported to the United States.

No rubber is manufactured in Costa Rica, and rubber goods are imported and used to a very limited extent.

The duty on manufactured rubber is as follows: Rubber coats or clothing, 54 cents per kilogram; hose, 9 cents per kilogram; boots and shoes, 65 cents per kilogram; toys, 25 cents per kilogram. The duty

on crude rubber is 2 cents per kilogram, but none is imported. The value of rubber goods imported in 1889 was only \$4,186, Costa Rican currency.

Almost all manufactured rubber is imported from the United States.

BECKFORD MACKEY,

*Consul.*

CONSULATE OF THE UNITED STATES,

*San José, November 1, 1890.*

## GUATEMALA.

REPORT BY CONSUL-GENERAL KIMBERLY.

The rubber produced in this country is bled from a tree indigenous to the coast or hot climates of Central America. It is a different-looking tree from the rubber-producing tree of Brazil. It grows more rapidly, and has a tendency to grow taller and straighter. These trees have been found growing in great numbers, scattered through the tropical forests of Central America, especially in Nicaragua and Mosquito coast, but owing to the destructive manner which has been employed to obtain their valuable gum they are rapidly disappearing.

There have been various attempts made by the Guatemalan Government to prevent the destruction of these trees and to encourage the planting of more. The trees are easily planted, need no cultivation, and grow rapidly from the seed. Hitherto most people have been discouraged from planting rubber trees, owing, principally, to the length of time needed for a tree to become sufficiently large to produce a profitable yield of gum, but the few who have undertaken this investment can now look forward to the time, not so far distant, when their few thousand rubber trees may bring them a fortune little dreamed of.

To plant the tree the first thing required is the seed (a small, round, dark seed), which may be sown in drills, and, after obtaining sufficient size, transplanted. But the simplest and cheapest way to plant rubber on a large scale is, after selecting a suitable tract of wild forest land, simply sow the seeds through the forests.

There still remains in the northern part of Guatemala, in that territory lying between Belize and Tabasco, great tracts of partially explored forests containing great quantities of rubber.

The rubber is obtained from the tree by cutting an incision in the bark, from which flows a fluid called milk, this, after being congealed by some simple process, is ready for market.

SAMUEL KIMBERLY,

*Consul-General.*

UNITED STATES CONSULATE-GENERAL,

*Guatemala City, March 21, 1891.*

## NICARAGUA.

REPORTED BY CONSUL NEWELL, OF MANAGUA.

Caoutchouc, or Indiarubber, is a product of this district, but the production is not fostered and consequently the rubber industry is falling off year by year, and soon the exportion from here will cease.

## RUBBER HUNTING AND GATHERING.

India rubber is obtained in Nicaragua from the "*Siphonia elastica*." It is a tree from 50 to 60 feet in height. No India rubber has as yet been obtained in this country from any other source. The native name for rubber is "ulli," being a term applied to it by the Aztecs, and the Spaniards called the collectors of it, "ulleros." Some authorities in this country claim that the rubber tree of Nicaragua is not the "*Siphonia elastica*," but the "*Castilloa elastica*," that the former is the rubber tree of the Amazons. The weight of opinion I believe agrees with the botanical name first mentioned.

There are a number of methods employed by the rubber hunters, but I will confine myself to those in general use. The large rubber trees are generally felled and V-shaped canals, about 2 inches deep and 2½ inches wide at the top, cut around the tree 1 foot apart, and the rapidly flowing milk collected, through funnels formed of leaves, into hemispherical-shaped calabashes, each capable of holding from 3 to 5 pints, or in concave holes made in the ground, well lined with leaves.

Another method employed is, to cut into the tree, near the top and down to its base, one, two or three vertical channels, according to the size of the tree, through the exterior bark into the lactiferous vessels, and most often through these vessels into the woody fibers; then cutting numerous oblique channels on each side of and connecting with the vertical ones. This work requires ladders, which the rubber hunters improvise either by using the vines running on the trees, known as liana, which they intend to scarify, or cut from the numerous meshes of vines found convenient in the forests; by these, the ulleros ascend the trees and commence the work of scarifying near the top, and continue cutting one or two vertical and numerous oblique connecting channels uninterruptedly, until they have completed them. They work rapidly, in order to keep in advance of the fast-flowing milk. The milk is conducted from these channels by the same means as are mentioned in the first part of this article.

A third method used by the rubber hunters is to scrape off the outer bark of the trees with a "machete," commencing 8 or 10 feet above and extending down to within 1 or 2 feet of the ground. Clay alone, or a vine and clay, is placed around the tree, inclined, so as to form a ridge about 2 inches high on the lower edge of the scraped or bark-removed part of the tree. The inclination of this guard is made



sufficient to direct the rapidly-flowing milk or emulsion into the receivers at the foot of the tree.

To make the milk coagulate soon the Indians, or rubber gatherers, make a decoction from the vine which they find twined around the India rubber trees. It has been found the most efficient way to effect coagulation. The vine is known as the liana; botanical name, "*Calonyction speciosum*," and this, on being added to the milk, in the proportion of 1 pint to a gallon, coagulates it to rubber, which is made into round flat cakes.

Sometimes the fresh milk is mixed with the coagulating decoction and then heated from 160° to 175° F., in the calabashes, and with a result apparently of a more elastic and less gummy India rubber than obtained by the other processes.

As the number of rubber trees grow less, the means used in gathering rubber becomes different. A few years ago the trees produced from 10 to 20 gallons of milk, and the rubber hunter then would take the milk and put it into a large hole in the ground and make one cake of it, known as "torta;" but now that the trees do not yield a great quantity of milk the plan of making a hole in the ground is fast being done away with. The best rubber is considered that which is taken from the long channels, which the ulleros cut in the trees, after the milk has been permitted to remain in the channels from one to two weeks. This rubber is known as "borricha," and it is thought to be superior to all other, because it contains less water.

So far as it has been possible to ascertain there is no American capital employed in the rubber business of this district. In fact, I am of the opinion that there is not any foreign capital invested in the rubber business in Nicaragua.

The amount of crude rubber annually exported from this district is about 40,000 pounds and is all destined to New York.

Some few years ago there was an export duty on rubber in Nicaragua, but the Government has since abolished the duty.

The natural supply of India rubber yearly decreases in Nicaragua. The cause of this is the habit of the natives, until lately, of cutting down the trees, thinking that they could thereby secure more milk. Trees generally stand but three years' tapping, and as they are not cultivated to any extent, it follows that at no distant period hardly any India rubber will be exported from this country.

Many of the trees have been destroyed through the large Harlequin beetle, "*Acrocinus longimanus*," laying its eggs in the cuts, and the grubs that are hatched boring great holes all through the trunk. The Government attempts no supervision of the forests; any one may cut the trees, and great destruction is going on amongst them through the young ones being tapped as well as the full-grown ones. The trees grow very quickly, and plantations of it might easily be made, which, in the course of ten or twelve years, would become highly remunerative,

## RUBBER TREE CULTIVATION.

The few experiments that have been made in the cultivation of rubber were performed very unskillfully. The rubber tree has been planted, but not for the purpose of deriving any benefit from the yield of the tree. It was planted for shade to cacao and coffee trees in a few haciendas, no special regard being had in any case to the development of the rubber industry.

On a cacao estate near the city of Rivas, Nicaragua, is an indigenous tree of the "castilloa" family, which grows to the diameter of 4 feet, and of which variety there is on this estate about 9,000 trees. The parties interested in the plantation do not permit the trees to be tapped, although they would yield from 35 to 50 pounds of rubber biennially. Also near the same city a large number of trees were planted as shade protection to cacao, and produced large quantities and excellent quality.

The "*Siphonia elastica*" grows wild in the low marshy soil, where it should be cultivated. Experiments, however, have been made in growing rubber trees in the mountainous sections of Nicaragua, but not sufficient time has elapsed to prove whether it will be successful. Experience proves that the rubber tree grows best in those places where it has been found wild.

It is an incontrovertible fact, so far at least as Nicaragua is concerned, that the rubber tree is susceptible of cultivation. This assertion is based upon the success that has accompanied the few experiments that have already been made.

In this district there are large tracts of land suitable for growing rubber trees. The rubber section of Nicaragua is that portion extending from the mountains in the vicinity of Chontales, the northeastern part, to the Atlantic coast.

It is the opinion of those here, who are interested in rubber production, that it would be very profitable. So much so is this the belief that some few planters are taking steps to enlarge and improve their rubber plantations.

Though the Government of Nicaragua has exercised no supervision of the forests, and though it has taken no steps to stop the criminal destruction of the rubber trees, yet it has endeavored to stimulate the cultivation of rubber by issuing a decree giving a premium of 10 cents for every rubber tree planted, where the number does not go below two hundred and fifty planted by any one person. The decree also provides that the trees must be planted in squares of 6 varas for each plant. A vara is the Spanish yard, which is 32 inches.

## NATIVE RUBBER BLANKETS.

There are no rubber goods manufactured in this consular district. The rubber hunters make rubber bags and blankets, but not for exporta-

tion. The rubber blankets made here excel anything in that line, so I am informed by travelers, that is manufactured. These blankets have a cool surface and do not become so heated when exposed to the sun as the blankets that are generally manufactured. They are also devoid of that gummy feeling that is natural to most rubber goods.

The natives use a very simple method to make these rubber articles. The milk as soon as extracted from the tree is put into a bottle and permitted to remain there for a few days, until it reaches the right consistency for use. A piece of canvas is then spread upon the ground and the milk poured from the bottles on it, and evenly distributed over the cloth by means of wooden paddles. The milk is not coagulated by any decoction, or by exposure to the air, as is usually the case, but is used in its natural state. A short time suffices for the milk to dry and the blankets are ready for service. The rubber bags pass through the same process, with the exception that the cloth is cut into proper sizes and then stitched into bags.

#### IMPORTS OF RUBBER GOODS.

It is impossible to secure any statistics in Nicaragua upon the amount and value of the rubber goods imported from the United States. Judging from the statements made to me by the leading merchants, it does not amount to a very large quantity. The principal article of rubber manufacture imported from the United States is hose.

*Duty.*—Foreign manufacturers of rubber goods, are required to pay a custom duty. India rubber and gutta-percha made up, no admixture of any kind, and boot elastics pay a duty of .332 cents. Rubber and such like mixed with linen, cotton, or hemp, table covers, and india rubber overcoats, pay a duty of .166 cents. The amounts here are in American money.

The total value of rubber exported from Nicaragua during the years 1887, 1888, 1889, and nine months of 1890, aggregated \$137,615.81. There was exported \$12,412.90 less worth of rubber in 1889 than in 1887. The amount to be shipped for the remaining quarter of 1890, added to that already exported this year, shows a falling off of \$20,000 in comparison with the year 1887. Such is the rubber history of Nicaragua.

#### AMERICAN RUBBER GOODS.

American rubber goods compare most favorably with such as are imported from Europe. In hose and overshoes the American manufacturers excel the goods of other countries. The amount of rubber goods used in this country is small. India-rubber boots would find a good market in Nicaragua, and are much preferred to the rubber overshoes that are sent here. The India-rubber riding coats used in this country come mostly from Europe.

The character of the rubber goods used in Nicaragua consist of riding coats; the poncho, square shape, with a hole in the middle to put

the head through; the inverness, very wide and long, so as to cover the rider, horse, saddle, and saddle-bags, and overshoes. Outside of the articles named there are no other rubber goods used in Nicaragua.

The suggestions that I would offer concerning the extension of the trade of American manufacturers of rubber and other goods have been already covered by me in an article recently addressed to the Department of State, but it can not be amiss to reiterate those remarks here.

The merchants of Nicaragua state that the one serious drawback to the extension of the trade of the United States with Central America is caused in part by the manufacturers of America not granting the same length of credits as can be had in Europe.

They claim that they can get a credit of from eight to nine months in Europe, whereas in the United States it is difficult to get even six months; on small orders no credit at all is given.

Again, these merchants claim that in England and Germany they can purchase at a cheaper rate. Furthermore, that the manufacturers of those countries are more accommodating and willing to make an article that is suitable, and that meets the demands of this climate and the peculiar habits and customs of the people.

Another objection to the extension of Americas trade is, the high freight charges between that country and this. As an instance, I was informed by a merchant of Managua, and also a coffee producer, that it cost him to ship to New York a quintal of coffee, \$3.30, when he could ship the same weight to England for a little over \$2. This is one of the strong objections urged by Nicaraguan merchants against trading with the United States.

The manufacturers of the United States are unmindful of the manner in which they pack the goods that are destined for this country. The railroad system of Nicaragua takes in only the more important towns, so that there is a great section of country that must be traversed by means of mules and wagons. Into the interior the freight must be shipped upon the backs of mules or upon wagons over rough mountainous roads, so that in consequence of this fact it is impossible to handle large bundles of goods. Repeatedly have the manufacturers in America ignored the orders received from here for the packing of merchandise, so that the merchants of this country have become thoroughly disgusted with the business methods employed by the firms of the United States.

The conclusion to be deduced from what I have heretofore written is, that the trade of the manufacturers of rubber in the United States can be extended by giving longer credit; by selling goods as cheap as they can be bought in Europe; by making the freight rates on a par with those between Central America and Europe; by packing the goods according to the wishes of the merchants; and, lastly, by manufacturing articles that are proper for this climate and the customs of the people.

WILLIAM NEWELL,

CONSULATE OF THE UNITED STATES,

Consul.

*Managua, December 26, 1890.*

## INDIA RUBBER PRODUCING VINES AND TREES IN NICARAGUA.

REPORT BY MR. J. CRAWFORD, OF LEON.

[Ule, Mex., Hule Cent. Amer.; Caoutchouc, Fr.; from Cancho, South Amer.]

Elastic masses of the hydrocarbon caoutchouc ( $C_5, H_8$ ) or ( $C_7, H_8$ , Foraday) can be obtained from the milky emulsion caused to exude from more than twenty-five species of trees and large vines indigenous in Nicaragua. But in this paper\* only such are mentioned prominently as can be caused annually to exude comparatively a large quantity of a sap or emulsion from which more than 20 per cent of India rubber can be separated by the crude methods now in use; also, in this paper some moderate producing species of the Euphorbiaceæ, as varieties of *Mauahot*, and some species of *Sapoteaceæ* are only referred to in Division 2 because—

(1) They are poor soil and dry land species of slow growth, requiring from nine to twelve years to attain size and strength sufficient to annually replace an annual loss of from 3 to 12 gallons of the India rubber containing emulsion; often when over nine years old they require two years to recover from 10 to 15 gallons loss of sap.

(2) The more rapid and vigorous growing and much larger annual yielding species are sufficiently numerous and the areas of land suitable for their rapid growing and recuperating properties are of sufficient extent in Nicaragua—at least 1,500 to 2,000 square miles—for profitable cultivation until intelligently directed experiments have determined, reliably, the comparative value of all the different species from which India rubber can be annually obtained in this country.†

For convenience of reference in this paper the five well defined, geological divisions in Nicaragua are referred to and numbered from west to east.

*Division 1* embraces about 15,000 square miles, all the large cities, and nearly two-thirds of the entire population in the country. It is the western or Pacific Ocean side of Nicaragua, and, generally has a soil of devitrified and decomposed volcanic ejecta, rich in iron oxides, potassa, lime, etc., and is well watered by streams flowing from the sides or base of its volcanic formed sierras and masses, or, where the water does not flow on the earth's surface, by wells or by sufficiently numerous rains to insure large annual crops of corn, sugar, grasses, and numerous varieties of excellent fruits. It contains in differently located areas of from 3 to 10 square miles each, in all about 500 square miles, which are suitable in soil, temperature, drainage, and atmospheric humidity (some

\* From notes made during the past three years while examining the natural history (especially geology, mineralogy, botany, and archaeology of Nicaragua.)

† The number of square miles in Nicaragua is known only within 2,500 to 3,400 square miles; no reliable map of the country has ever been published; with her northern limits (now in dispute) as now permitted, she embraces between 47,800 and 48,600 square miles; if the northern limits were extended to the Rio Patuca—her natural boundary, her area would be about 52,000 square miles.

of the *sine qua non*) for the so far as known at present most desirable indigenous species of trees and vines from which in this country can be caused annually to flow the largest quantity of the emulsion, from which is separated the best quality [*i. e.*, containing the largest per cent of caoutchouc ( $C_5, H_8$ , or  $C_7, H_8$ )] of the elastic mass—India rubber.

A few tons of first-class India rubber are annually collected from groves of the trees and vines in the forests in five or six localities in this division, especially on the Peninsula of Coseguina, and at Palacio and Marote, near the southern part of the Gulf of Fonseca.

*Division 2* is the western side of the central mountainous part, containing about 5,000 square miles, and has but a few localities, in all about 100 square miles, where the necessary conditions of atmospheric humidity, soil, drainage, and temperature exist suitable for the, at present considered, most desirable varieties of the India-rubber producing trees and vines.

Several hardy, slow-growing, poor-soil loving species of *Euphorbiaceæ*, *Sapoleaceæ*, and *Moraceæ*, yielding India rubber, are found indigenous in this division (also in parts of the other divisions), which, after experience obtained by cultivating the more vigorous, rapid-growing families, would, most probably, under intelligent cultivation, become desirable kinds for comparatively high lands.

*Division 3.*—Includes the different mountain ranges, ridges, elevated plains, and valleys composing the cordilleras of Nicaragua, in all about 10,000 square miles. In the narrow, deep valleys between the mountains are found the only untouched groves of the most desirable species of the India-rubber producing trees and vines in this country. The species in this division are numerous and the trees are large, tall, and vigorous. This is the uninhabited part of Nicaragua, although it is its "Beulah Land," unsurpassed in any country in the desirableness of its altitude above the Pacific Ocean, pleasant climate, fertile soil, abundant water supply from the mountains, annual range of temperature, valuable timber, and freedom from sources of malaria. There are, probably, 300 square miles of the valleys in this division in which the cultivation of the most desirable of the India-rubber producing species would be successful and profitable. A company of citizens of the United States have recently contracted with the Government of Nicaragua to build a railroad from the Caribbean Sea through this (and all the five divisions herein referred to) to the Pacific Ocean, which route being an easy grade the railroad can be constructed rapidly.

*Division 4.*—This is the eastern slope from the central cordilleras to within 60 or 70 miles of the eastern or Caribbean seacoast, say, to about longitude  $84^{\circ} 30'$  west from Greenwich. It embraces about 10,000 square miles in which are numerous areas; in all, 900 or 1,000 square miles that are nearly perfect in soil, temperature, drainage, low-protected altitudes, and atmospheric humidity for the rapid and vigorous growth of several indigenous species of the vines and trees from which large annual weights of good qualities of India rubber could be obtained. This division has

but few inhabitants, usually Indians, occupying villages of five to nine small, thatched roof, wall-less sheds each, located along creeks and many miles apart, although nearly all parts of it are desirable because of its fertile soil, abundant water supply, moderately warm climate, and large forests of several kinds of valuable trees. Less than twenty years ago the groves of India-rubber producing vines and trees of the best species were numerous and extensive and composed of trees 1½ to 3½ feet in diameter and 30 to 60 feet or more high. Now, those groves and nearly all the large and medium-sized trees producing India rubber have been destroyed: (1) By the "Huleroes," or India-rubber collectors, who cut down the vines and trees to secure, at one time, a large quantity of India rubber. (2) Too deep and rough incisions, cutting through the cambium layer into the woody fiber, killing the trees. (3) Rough incisions, under the numerous ragged edges of which insects, especially a species of beetles, the *Aconsymus longimanus* laid their eggs, and the grubs (larvæ) destroyed the trees in a few years.

The lands are national, but the Government of Nicaragua has not enforced any control over them. The party of Huleroes, or India-rubber collectors, who first arrive in any locality where the India-rubber producing vines and trees are numerous only claim that locality for the part of that year they remain there, and the party collects from each tree all that it will rapidly yield at that time, usually resulting in the death of the tree that year or within a few years. However, some of the Indians, the Amerrique and Woeva tribes especially, claimed and enforced their claim for several years to selected localities, and by some greater care than usual have preserved alive some few groves of large India-rubber producing trees.

Young trees and vines of the best India-rubber exuding species are now, in large numbers, growing rapidly in this division; in some localities they could, by a few additions, be converted into orchards or groves of large area each, and then cultivated or properly cared for.

Division 5 is the eastern part of Nicaragua along the Caribbean sea-coast, and 70 to 80 miles westward from that coral-reef coast, extending southward from "Cabo Gracia al Deos," about 15 degrees north latitude, to the southern boundary of the country, a few leagues south of the route considered the most advantageous for the Nicaragua Inter-oceanic Canal. It embraces about 7,000 square miles, of which about 200 are equally adapted as similar, above described, areas in Division No. 4, for the rapid growth of vigorous vines and trees which can be made to yield annually full crops of India rubber; these proper areas are found in this division along side of creeks and rivers above the usual annual floods. Eighty per cent of the population in this division live on sandy ridges near the Caribbean Sea and consist largely of negroes,\*

\* A large number of whom are runaways or descendants of runaways from the severe slavery labor system in the island of Jamaica and British Honduras. Many of them are creoles of English or Scotch and negro blood. They all claim to be subjects of the Kingdom of Great Britain and Ireland.

Sambos,\* a few white subjects of each, Great Britain and Germany, and a few citizens of each, the United States of Colombia and the United States of North America; also a few, possibly 300, Musquita Indians (Moskoes). A large majority of the Indians, negroes, and sambos were "huleros," or Indian-rubber collectors, and are familiar with the recesses in the forests where once the groves of large trees existed, and where now very large numbers of small trees for planting into orchards or groves for cultivation can be found; also, they are familiar with the various processes used to scarify the trees, collect the exuding milk-white and milk-density emulsion, and the various modes used to coagulate it and to separate, en mass, the India-rubber globules, or more accurately the globules of caoutchouc ( $C_5 H_8$  or  $C_7 H_8$ ). These crude processes will be the basis or principles to be improved and used hereafter when intelligent interested persons plant and care for large groves or orchards of these species of trees and vines.

The characteristics of localities in Nicaragua, where grow most rapidly and vigorously the species of trees and vines that can be made to yield annually the largest quantity of the best quality India rubber, are:

(1) An alluvio-sandy soil having a large percentage of decomposing vegetable matter, well drained to a depth of 3 to 6 feet.

(2) A temperature never below  $68^{\circ}$  F., and usually above  $80^{\circ}$  F.

(3) Well shaded by a forest of large trees.†

Class and genera of some of the most desirable species of the India rubber trees:

*Euphorbiaceæ*: Spp. similar to *Siphonia* (Heréa), *Manihot*, *Euphorbia*, etc.

*Moracæ*: *Artocarpus* Tribe; spp. similar to *Castilloa*, *Artocarpa*, etc. Moreas Tribe, spp. similar to *Ficus*.

*Aponynææ*: Varieties of *Hauconia*, *Colophora*, *Urcolea*, etc.

*Sapoteacææ*: *Palo de Vacu* (Cow Tree), the *Masaranubia* of Brazil.

[I have not yet examined and compared with sufficient accuracy to classify and name the species and varieties of the kind of trees and vines in Nicaragua.]

#### MODES OR PROCESS FOR OBTAINING THE EMULSION.

(1) The large trees, 2 to 4 feet diameter, were almost invariably cut down and a V-shaped canal, about  $2\frac{1}{2}$  inches wide at the top, was cut around the tree at intervals of about  $2\frac{1}{2}$  feet, through the cambium layer into the woody fiber, and the rapidly flowing milk, like emulsion, was conducted through improvised funnels made of leaves or of bark into hemispherical basins made of one-half of the oval or spherical fruit of a gourd-bearing tree of the *crecentia* species, and called a "cal-

\* A mixture of three or more types, Indian, negro, Caucasian and Malays. They all claim to have English or Scotch blood, and to be subjects of Great Britain. They have the reputation of being bad characters, but it all appears to arise from jealousy on the part of the negroes against the sambos, who are faithful, strong laborers.

† These conditions are unsuited for a few good species that have been mentioned in Division 3, as indigenous in poor, sandy, comparatively high altitude soil.



abaso," and capable of holding 4 to 6 pints each, and in these calabastos conveyed to a slightly concave hole in the ground, which had been excavated, smoothed, and compacted; or concavities were made, compacted and smoothed inside, in the ground under each tree, encircling V-shaped incisions, into which concavity the exudation from that canal was collected.

(2) Incisions are made 2 to 3 inches wide and usually into the woody fiber with a heavy knife 24 to 36 inches long, called a "machete,"\* commencing high up the tree and descending spirally, 18 to 24 inches apart, to the roots, and collected as described above in (1).†

(3) Vertical V-shaped canals 2 to 4 inches across the top are cut into the lactiferous glandular layer and often into the woody fibers from near the top to the roots of each tree, and numerous oblique channels are made on each side of and into the vertical canal or canals in each tree.‡

(4) Holes are cut, entering diagonally upward, in a line around the tree, commencing the lines as high up the tree as the "Hulero" can reach to or conveniently get up to. The interval between each hole on the same line is 12 to 14 inches. On the completion of each hole a small clay cup is attached to its lower side by clay. Into these cups the elastic containing emulsion is collected and the cups when full or when the emulsion ceases to flow from the hole, are emptied into calabastos or into large earthen dishes. These rows of holes are made at intervals of a foot or 18 inches down to near the roots of the trees or vines. It is a process more often applied to the variety of *siphonia* (henrea) than to the other species.

#### COAGULATING THE EMULSION AND SEPARATING THE INDIA RUBBER.

(1) The emulsion is placed under cover in a warm place, either in the shade or in sun-light, and in a few days a large part of the caoutchouc ( $C_5H_8$  or  $C_7H_8$ ) globules float to the top and cohere, but in the meantime fermentation has commenced and decomposed some of the globules and possibly prevented the formation of others.

(2) By heating slowly in the calabastos to about  $165^\circ$  to  $175^\circ$  § and

\* A majority of the laboring class in Nicaragua carry a "machete" with them to use as a hoe, spade, or ax, and not only prefer those manufactured in the United States of America, but can, when bright and new, distinguish the genuine American make from the German imitations, although stamped and labeled with names of American manufacturers.

† This process is similar to, but much rougher, than that used in the turpentine orchards in North Carolina, Georgia, Alabama, Mississippi, Louisiana, etc.

‡ The Huleros ascend the trees by attached vines, or by an improvised ladder of vines, or by a hoop made of a vine and passed loosely around the tree and their body.

§ The "Huleros" have no thermometers. They watch the heated emulsion and determine the proper temperature by the formation of the India rubber on top of the liquid. Many tests which I made with thermometers indicated a heat from  $160^\circ$  to  $170^\circ$  Fahrenheit.

adding and stirring while hot, the expressed juice or the decoction in proportion of 1 pint of decoction to 1 or 1½ gallons of emulsion of the leaves or vines of the convolvulacæ tribe—as “Morning Glory,” or Bindweed, or the decoction of the leaves or vines of the sweet potato—would be an excellent assistant to separate the India rubber.

(3) By heating thin layers of the fresh emulsion to 170° to 185° F., on a wooden paddle (such as they use for their canoes) coated with clay, in the dense smoke of slowly-burning palm nuts or other oil nuts, *Atalea excelsia*, *Eucturbe edulus*, etc., or in the smoke from the slowly burning wood of the liquidamber, a kind of “forest-gum” tree, or similar *Balsamifereæ*.

(4) Occasionally salt (chloride of sodium) or some of the alum salts are used, but these appear to injure the elastic properties of the India rubber.

#### ANNUAL YIELD.

Trees from 1 to 3½ feet diameter should yield annually from 2½ to 20 gallons of emulsion, from each gallon of which about 2 pounds of India rubber should be collected, that contains 30 to 35 per centum of *caoutchouc* (possibly more), and the remainder a watery liquid holding malic acid, tartaric acid, and nitrogenous compounds.\*

April, May, and June are the months during which the vines and trees yield the largest per centum of India rubber, and also the time of the year when the trees and vines rally more rapidly from the loss of sap (emulsion), and also when the lacerations and incisions can best be protected from the larvæ of insects, especially the beetles.

#### WATER-PROOF CLOTH AND CLOTHING FROM THE FRESH EXUDATIONS.

The “Huleros,” to make cloth or clothing waterproof, add a small per centum of sulphur or gunpowder to the fresh exudation and boil for a short time; then they stir the hot mixture and spread it over the stretched cloth as evenly as possibly two to four times, using as a spreading brush the fibrous, net-like coatings found at the attachment of the fronds to the cocoanut tree, *Cocos nucifera*.†

#### CULTIVATION: UNSUCCESSFUL EFFORTS AND CAUSES OF FAILURE.

Several unsuccessful attempts have been made to cultivate India rubber producing trees and vines so as to get from them annually a large per cent of the elastic mass, and on those failures the current opinion

\*These “Huleros” guess with some accuracy at the number of pounds of India rubber they will get from a tree so soon as they get the emulsion to flowing from it freely.

†This fresh exudation waterproof is superior for rough usage to any made in Europe or in the United States, and less liable to “peel” or “scale” off. Aqua ammonia (of strength of the United States Pharmacopœia, diluted) will preserve the emulsion fresh for many months.

is expressed by even some of the most intelligent men in the country that cultivation decreases both the per cent of exudation and of caoutchouc. But recently, made careful inquiries have disclosed the faulty details, which I condense.

First. No proper regard was had to the locality, temperature, soil, atmospheric conditions, etc., selected for the indigenous plants that were transplanted to uncongenial localities. Some of the experiments were made by planting the India rubber producing trees in orchards with cacao (*Theo broma*) trees in lands and localities well suited to the latter tree, but not suitable for hardly any species of the former; also, the India rubber producing require more shade than the cacao producing trees.

Second. India rubber trees were removed from low, hot, well-shaded places in forests to a soil porous and dry, composed of volcanic-ejected ashes, sands, capilli, etc., and their growth retarded, nature changed to slow growing, small emulsion yielding, and struggling recuperative disposed trees.

#### CULTIVATION: OWNERSHIP OF SUITABLE LANDS.

Nearly all the lands in Nicaragua that are the most desirable for the cultivation of the best or largest producing species of India rubber vines and trees are national lands and can be bought at about \$1 per "manzana," (about  $1\frac{1}{2}$  acres). Probably the Government of Nicaragua will grant concessions of lands, or exemption from military duty of laborers, to a few persons to have two or three large experimental groves of India rubber producing trees planted and constantly cared for, provided the applicants came well recommended and with proof sufficient to convince the Government that they had the necessary capital and firm intention to make the experiments thoroughly.

The proper distance apart for planting such trees and vines is 20 to 25 feet.

The annual collection of India rubber can be commenced safely the fifth year from many species of rapid growing vines and trees, possibly in some localities the fourth year.

The planting and cultivation consists in cutting down and burning the undergrowth and weeds in the suitable forest localities, planting rapid growing shade trees where shade is needed, and then setting out the plants or cuttings taken from the forest or from a nursery carefully. The trees and vines grow equally well from the seed or from cuttings. The soil and surrounding conditions in which the most desirable indigenous species grow are those proper and necessary for the successful cultivation of that species.

#### TESTS IN THE FOREST BY WHICH TO DETERMINE THE BEST SPECIES.

In the place of writing a long critical botanic description of the many kinds of vines and trees from which India rubber can be obtained, and comparing their morphological structures, etc., so as to decide as

to the comparative quantity of India rubber each species will produce, attention is directed to the following easy, quickly made, reliable tests as to the India rubber producing value of each variety or species of tree found indigenous in its chosen locality.

(1) Cut through the bark into the lactiferous vessels and work between the fingers some of the exuding sap or emulsion; in a few minutes an estimate can be made of the per cent and elastic qualities of the contained India rubber.

(2) Cut from the tree a piece of the bark, removing with it the inner face of the bark, and estimate from the number of dry elastic threads found filling the pores and intercellular spaces the quantity and quality of the India rubber in that species.

Rice, banaas (*Musa sapientum*), plantains (*Musa paradisiaca*) and some of the fibrous *Agaras*, as sisal or henequin, peta, puica, etc., can be grown as interrow products in India rubber orchards; also, probably, the vine producing the vanilla bean (*Vinella aromatica*), could be successfully cultivated alongside of the India rubber yielding trees, especially some of the *Ficus* species, without injuring the trees or decreasing their annual yield of India rubber.

Intelligent attention and care will improve the quality and increase the quantity of India rubber produced by the different species of trees and vines.

J. CRAWFORDS.

LEON, NICARAGUA, *October 16, 1891.*

P. S.—*Exports of India rubber from Nicaragua.*—The United States consul at Greytown, Nicaragua, could report from records in the custom-houses in Greytown and Bluefields, about two-thirds of the amount annually exported from the Caribbean seacoast of Nicaragua. The other one-third of the annual production of India rubber in that part of this country goes, without record in custom-houses in Nicaragua, in small schooners to Jamaica, British Honduras, etc. But a few tons are annually shipped from West Nicaragua.

J. CRAWFORDS.

## SOUTH AMERICA.

### ARGENTINE REPUBLIC.

REPORT BY CONSUL BAKER, OF BUENOS AYRES.

Caoutchouc in the crude state is not produced in this consular district, nor are there any manufactures of India rubber in the Argentine Republic.

In the forests of the Gran Chaco, about 1,000 miles north of this province, as also in the Republic of Paraguay, there is a tree whose name in the Guarani language is *Mangá-icé*, or India-rubber tree, which is everywhere very abundant, from the sap of which, I am informed, a most excellent article of gum elastic is manufactured. I do not know that any effort has ever been made to utilize the sap in the Argentine Republic; but in villa San Pedro, Paraguay, this industry is carried on to a considerable extent, but in a very primitive way. Not long ago an English gentleman named C. McDonald went from here to Paraguay with a view to engaging in this industry, but I have never heard the result of his undertaking. Perhaps our consul at Asuncion might throw some light on the subject.

E. L. BAKER,  
*Consul.*

UNITED STATES CONSULATE,  
*Buenos Ayres, November 21, 1890.*

---

### DUTCH GUIANA.

REPORT BY ACTING CONSUL WYNDHAM, OF PARAMARIBO.

The caoutchouc, or India rubber, is produced in this colony under different species, the most important of which is the balata, or milk of the bullet tree, the export of which is attaining considerable importance, and will, it is believed, be very productive for a time—a time only, as there is no forest-conservancy law in the colony, and parties who are granted tracts of land for the exploitation of this industry are uncontrolled in their method of drawing the milk, which results in trees being totally destroyed to get the greatest amount of milk by the most inexpensive and quickest method.

The district where the largest quantity of balata trees are known to exist in the colony is that bordering on the Correntyne River, known here as the Nickerie district, and there large tracts of land have been given to an English firm to collect balata.

Balata, I may here mention, the produce of the bullet or "bully" tree (*Mimusops balata*), belongs to the order of *Sapotacæ* to which the *Dichopsis gutta*, and other gutta-percha trees belong, but it appears to be a superior kind of gutta-percha, while not exactly an India rubber; and its use in mixing with the latter has been found to be useful.

Dr. Hugo Muller, F. R. S., says:

It seems balata is treated by the manufacturers simply as a superior kind of gutta-percha, and therefore its name disappears when manufactured.

Nevertheless, balata is distinctly different from gutta-percha, and this is specially manifested in some of its physical characters; for instance, it is somewhat softer at ordinary temperature and not so rigid in the cold.

The chemical composition, however, is probably quite identical with that of gutta-percha and caoutchouc.

Without quoting further from this report it may be mentioned that the balata he reports is less affected by the action of light and air when exposed than is the case with gutta-percha under similar exposure, Dr. Muller also mentioned that specimens dried by evaporation proved harder than those produced by precipitation in spirits of wine, and the loss in the evaporation on washing and drying was only 25 per cent as compared to 38 per cent when precipitated.

Besides the bullet tree there are trees or plants known as the "ponck-pong, which gives a valuable rubber, and again, "bartaballi" and a bushrope, to which collectors do not appear to have given a name.

The India rubber, balata, etc., industry, although carried on in the colony in a desultory way for a long time, has never until quite lately assumed sufficient importance to cause the local government to legislate upon it, and even now the law lately passed, of which I inclose a copy in the Dutch language, only lays down the regulations under which concessions are granted, and does not deal with the supervision of the treatment of the trees, or the method of extracting the milk.

With both these remarks I will confine myself to answering the points suggested for report.

1. Caoutchouc, or India rubber, is found in Dutch Guiana.
2. Yielded both by trees and vines, the names of which I have given in the body of this report as far as I am able to obtain them.
3. The method of collecting by the milkers is by cutting down trees and milking the stems,\* by incision, and by circling the tree; in each case, as there is no protective law, the trees are, for the most part, ruined.

\* I am informed that cutting trees down is now prohibited, and that a law is being prepared imposing an export duty of 4 cents, American, per kilogram.

4. No American capital is yet engaged in the colony in this interest.

5. The exports are made to Demerara, and not being taxed there is no record of the production.

6. No export duty as yet. If the production becomes a factor in the colonies' budget it will most assuredly not escape taxation long.

7. There is a local outcry that the trees are being destroyed, but this is merely a local political matter not really touching the question. Nevertheless, unless legislated for, there is reason to fear reckless bleeding and cutting trees will destroy the belts of trees now extant, and the trees growing very slowly, and in nearly all cases failing to recover even after many years if improperly tapped, will eventually lead to a destruction of the balata production.

8. No experiments have been made on the cultivation of rubber trees, vines, or plants.

9. Nothing to report, as no attempts have been made.

10. The experience of those who have studied the growth in the Guianas leads to the opinion that the growth of the plant is subject to soil, locality, and drainage, and is not favorable to cultivation.

In connection with this subject I would advise parties interested to procure a copy of the "Timehri" or Journal of the Royal Agricultural and Commercial Society of British Guiana, volume IV, part II, edited by E. F. Im Thurn, M. A., published by E. Stanford, Charing Cross, London Southeast, in which an able article on Balata and Balata industry appears.

WM. WYNDHAM,  
*Acting Consul.*

UNITED STATES CONSULATE,  
*Paramaribo, November 5, 1890.*

## ECUADOR.

*REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.*

### CRUDE RUBBER.

Caoutchouc, or India rubber, is a product of this district. The yield is by trees—by cutting the trees and gathering the gum in holes made in the ground at the base of the tree. The tree is often felled. There is no American capital employed in the rubber industry in this district. The export duty is 2½ cents (sucro\*) per pound. The revenue derived in 1889 from the export duty on crude rubber was \$13,980.53 (sucro). For years the natural supply has been rapidly diminishing, and the fear is entertained that the natural supply will continue to decrease.

The best rubber comes from the mountain districts. There is no attempt made toward cultivation.

---

\* The Ecuadorian "sucro" (dollar) is valued at 85 cents American money.

It is believed that the rubber tree is susceptible of cultivation and that its culture would be highly profitable. There has been but little attention given the matter, and I could learn of but one attempt at cultivation. In 1884 Mr. Morla, a wealthy gentleman of Guayaquil, planted 20,000 trees, but inasmuch as the rubber tree does not bear until reaching a growth of ten years, the success or failure of the experiment can not yet be known. About 400 trees to the "cuadra" ( $1\frac{1}{2}$  acres) were planted, and it is expected that at maturity the yield will be about 3 pounds per tree.

The rubber trees of Ecuador are under no governmental protection, and unless they are on lands of private ownership they are, as a rule, cut down by the hunter.

#### RUBBER GOODS.

There are no manufactures in this district. The amount of rubber imported in manufactured form is limited, and statistical matter of a reliable nature can not be had.

There are four houses in Guayaquil handling manufactured rubber: two American, R. B. Jones & Co., and the successors of E. H. Henriques; one native, N. Novero & Co., and one European (French), Duran & Leveroy. The house of Henriques handle the American manufacture exclusively, claiming that in every respect it is superior to the European manufacture.

From the best information I can obtain I would estimate that of manufactured rubber imported per annum there is 7,500 pounds of square, round, and sheet packing; 5,000 feet of hose; 135 dozen pairs of over-shoes and boots, the major part of which comes from the United States; 50 dozen ponchos; 10 dozen leggins, and 300 feet of cloth, the major part of which comes from England.

The export duty on manufactured rubber is 50 cents per kilogram, with 20 and 10 per cent additional.

Several of the houses mentioned prefer the English manufacture, claiming that they are superior in finish, and, for the same weight and finish, about 10 per cent cheaper than the American manufacture. I can offer no suggestion except that special inducements be offered the houses handling American goods exclusively, to the end that they, in turn, might offer such special inducements to the public as to monopolize the trade.

WILLIAM B. SORSBY,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Guayaquil, December 13, 1890.*



## BRAZIL.

## THE AMAZON VALLEY.

*REPORT BY CONSUL KERBEY, OF PARA.*

## INTRODUCTORY REPORT.

That there is a great danger of rapid diminution of the supply of crude rubber from the Amazon Valley is generally conceded by the more conservative and intelligent Brazilians.

On the other hand, there are those interested in the output who assert as positively that the rubber forests are practically inexhaustible, and specious arguments are made to the effect that the undeveloped territory of virgin forest is as extensive as that which is being tapped.

I am constrained to inject the personal observation here that I have heard precisely the same logic used by the energetic and loud-talking operators in the coal, oil, and gas fields in the United States.

There is no risk or labor in its production as compared with the search for gas and oil, or gold.

The operator does not sink money in shafts a thousand feet deep as an experiment. Neither is it necessary to bore holes in mountains or turn rivers from their courses to find gold and silver.

Figuratively, the gold grows on the trees in the Amazon Valley. All that seems to be necessary is to hire the friendly natives to enter the jungles, tap the trees with a hatchet as a wand, and the liquid gold runs into his coffers.

There are no dry holes in Amazonian valleys. The rubber tree is in sight everywhere; literally, the woods are full of them—full also, it may be said, of snakes, alligators, yellow fever, etc.

In the great rush for becoming suddenly rich lies the danger. The foreign operators here are killing the Brazilian geese that lay golden eggs.

It is not only a question of exhaustion of present supply, but the equally important consideration of an increase in production of rubber that will be necessary to meet the enormously developing requirement for this article. As the Department circular states:

This destruction of the rubber tree is beginning to be the cause of uneasiness to our manufacturers for very potent reasons.

It is of primary importance for the reason that, while the manufacturers of India rubber are steadily increasing, there would seem to be no efforts made for the conservation of the rubber forests.

I have made some careful inquiries of disinterested parties in relation to this question of supply, and find that in reference to this Lower Amazon field—or in the Delta—very many rubber forests are already exhausted.

No legal precautions have as yet been taken by the Government for the preservation of the trees.

Dr. Paez Carvolho, the popular vice-governor and senator-elect for nine years to the new republican Congress, informed me, just before leaving for Rio, that it was the purpose of the coming Congress to discuss the important question of conservation of rubber forests.

This may probably result in some legislation after some years. Probably the immediate effect of the agitation will serve to bring up the question of state rights, as to whether the national or state government should control these public lands.

At the present time and for some years past the only law in the matter was that embodied in the instinct of the native rubber gatherer and the selfish interests of the owner.

If but three gashes per day are made in the bark of the rubber tree, and the hatchet in the careless hands of the native does not penetrate or strike the wood, the tree does not appear to suffer from the treatment, except that the trunk grows thick and the scarred surface becomes irregular and bumpy. It will continue, however, in good health and yield milk in abundance for thirty or forty years. If the blow from the hatchet, however, wounds in the slightest degree the wood of the tree it dies. Decay begins at this wound. As the wood is soft, a little weevil-called *punilha* enters the decayed spot, as a worm does the body, and hastens the destruction. The tree may drag out a miserable half-dead existence, but, as they say in Portuguese, it is *cancado*.

It will be seen how very easily the destruction of even almost "inexhaustible" forests may be completed by a mere blow of a hatchet in the hands of a marauding native.

For this reason very many of the once "inexhaustible" rubber swamps of the Lower Amazon are already wholly or partially abandoned, and the same fierce onslaughts are being made now upon the virgin swamps of the upper tributaries.

Renters of swamps are naturally less careful of the trees than are the owners, who manage their property from a central rubber station.

But, as previously indicated, the principal forests are "owned" in Para or Manaos by those dealers who are interested only in the present supply, and who have no interest in the future production.

#### CULTIVATION IN THE EVERGLADES OF FLORIDA.

Though I have no practical knowledge of the cultivation or its requirements, it has occurred to me that perhaps it might be worth while to attempt an experiment in rubber culture in the everglades of south Florida.

I spent last winter in that climate, where the conditions of moisture, heat, and soil seem to be about on a par with my observation here.

The overflowed lands of south Florida are below the frost line; the necessary conditions of rubber growing seem to be heat and moisture, no cultivation being required.

With a view of testing the matter I have sent to Prof. O. P. Winkelman, of Lake Genoa, Orlando, Fla., some of the rubber nuts and plants for experimenting. This gentleman, being a thoroughly competent agriculturist of large experience, will be able to give the subject attention on his own property in the extreme southern portion of the State.

There is no question whatever as to either the practicability or the immense lucrativeness of rubber growing in this valley. Here it is solely a question of "time."

The only, but the eternal, objection is always raised that the rubber tree does not produce sufficient milk to justify until after a long time of growth. Naturally it seems like unspeakable selfishness to disinherit the future because of no present certainty of profit.

The Brazilian people are slow to act. The present seems to be enough for them. The prevailing sentiment seems to be of the "hunkidori" order, to let well enough alone. Truly, Brazil is the land of to-morrow, and probably the Anglo-Saxon will yet be called upon to develop this, the richest valley in the world.

I have gathered from reliable sources these facts and figures on cultivation. The *Siphonia elastica*, grows here spontaneously, is the best rubber tree in the world. The seeds or nuts are abundant and easily obtained. Here on the Lower Amazon they are now ripe and falling. They are somewhat smaller than horse-chestnuts, which they resemble in shape, and grow three in a capsule, which bursts with a sound resembling a firecracker, throwing the nuts to some distance. In one day a man could gather enough of them to plant a quarter section of land. They germinate easily and grow rapidly. They need plenty of moisture and heat, but not too much direct sunlight while young.

The young rubber trees can be found in the forest and transplanted with facility, being careful not to plant them too deep, spreading out the roots horizontally, and shading them until they have reached a certain height. But it is much less labor to plant the nuts in a garden bed, taking care to protect them from the sauba ants and the sun's rays until they are ready to transplant. When 6 or 8 inches high, they should be removed to small half-bushel baskets of earth, in which they may grow until they are 2 or 3 feet in height. They are then ready to be planted where they are intended to remain. The basket, which costs but a few cents, is set into the ground with the plant just as it is, and the work is done.

The trees will never crowd each other if planted 12 feet apart. That will give 538 trees to an acre of ground.

The land needs no preparation. The young trees will do well if planted in the original forest, but it would be still better to plant them among "second growth" of a last year's clearing. The second growth would give the necessary shade to the young rubber trees, and these would soon shoot above it. At the end of the first year the young trees will be from 8 to 10 feet in height, and from 12 to 15 at the end of the second year. No cultivation or care is necessary.

The rubber tree thrives well both on low and high land; but in order to yield plenty of milk it must have plenty of moisture in the soil part of the year at least. For example, on the river Purus, where the flood plains are covered with water from one to three or four months in the year, the trees on these levels yield milk in abundance, while thrifty trees of the same sort, not reached by the floods, do not pay for the trouble of tapping them. On the Lower Amazon not only the trees on the tide flats and annual flood plains yield milk in paying quantities, but also those on the high land (*terra firma*), because the abundant rains of six months or more in the year supply abundance of water to the soil. The extent of territory in the Amazon Valley that might profitably be planted in rubber trees would yield not only rubber enough to supply this world, but might safely take the contract for the whole solar system.

The great advantage of a compactly planted rubber forest, or grove, would be the saving of labor in the traveling through the swamp. The rest of the labor is light and quickly done, except, perhaps, the coagulation of the milk.

Taking the most unfavorable figures of the rubber swamp and applying them to the rubber grove, we may calculate that the man who cares for 150 trees in the swamp could care for an acre with its 538 trees. As 4 kilos is an average yield from the 150 trees, his 538 would yield him 15 kilos of rubber per day. One dollar per kilo is an average price here. Thus the laborer gets \$15 per day, with no expense but his ordinary living expenses, during four or five months in the year.

Then why don't they plant rubber trees?

That is the same question that Brazilians are now beginning to ask each other. The only difficulty in the way, as previously stated, is that it takes from twenty to twenty-five years for a grove to come to yielding profitably. It is a long time to wait. But every one confesses that it would be a magnificent investment of capital. The few experiments that have been tried abundantly prove that they are right.

#### EXPERIMENTAL PLANTING.

In 1865 Sr. Joaquim Antonio da Silva, now deceased, but then living on the river Guama, 12 miles above the city of Para, had 20,000 young rubber trees planted on the low alluvial island in the river, called Bom Intento, which formed part of his estate. He paid to Francisco Bahia, the man who did the work, the sum of 16 cents apiece for the young trees when planted. The 20,000 young trees thus cost him a total outlay of \$3,200.

Unfortunately the trees were all planted near the margin of the island on its whole circumference, as only a small part of the island was to be planted, and it was less trouble to plant near shore than to work his way through the jungle farther inland. The tide ebbs and flows with tremendous power, and tears away and builds up the island at one or the other end, alternating by periods of ten years. Conse-

quently the upper and lower ends of the island have both been torn away and built up again since the trees were planted twenty-five years ago. The sides of the island have also suffered some, so that now only about 1,000 of the original 20,000 rubber trees are remaining.

But they are fine trees from 30 to 40 feet in height and 9 or 10 inches in diameter. The present owner of the island is Sr. Joaquim Nunes da Silva Matta, a well-to-do merchant of this city, who inherited the island from its former owner. The trees yield abundantly, although they are being tapped contrary to the orders of the owner, who would like to have them lie idle a little longer.

Though the ground covered by the trees would probably exceed 2 acres in extent, the owner considers them a very valuable piece of property. The trees have never cost a cent for care or cultivation since they were planted, and if they had been planted a little farther inland, a few rods only, nearly the whole 20,000 trees would now be standing like those which remain.

Some of the American colonists at Santarem have planted some rubber trees, both on high and low land, though not in large numbers. The trees are as yet only a few years old, but they are growing finely and require no care.

JOSEPH O. KERBEY,  
*Consul.*

UNITED STATES CONSULATE,  
*Para, December 3, 1890.*

---

## THE AMAZON VALLEY.

REPORTS TO CONSUL KERBEY OF PARA.

### RUBBER TERRITORY.

It is a well known fact that the best India rubber, and the most abundant supply from any part of the world, comes from Para. The territory from which Para rubber is gathered is nearly or quite as extensive as all of the United States lying east of the Rocky Mountains. Some of the Para rubber has to come as far to reach Para as it has to travel from Para to reach New York. The tide-washed lowlands of the delta of the Amazon and the annual flood plains of the Upper Amazon and its tributaries are the places where it is found almost exclusively.

This consular district embraces four Brazilian States, three of which, Para, Amazonas, and Goyaz, lie within the Amazon Valley, while the fourth, Maranhão, belongs almost entirely to the Atlantic slope, and has a different soil and climate.

Maranhão produces but little rubber, and that of inferior quality (the Para merchants say). Its discovery there is limited and comparatively

recent, and the most approved methods of preparing it have not been adopted.

For lack of facilities for transportation, no rubber comes from Goyaz, although there are rubber forests there of unlimited and undeveloped extent. The freight by canoes would cost more than the market value of the rubber.

A small proportion comes from Bolivia and Peru, but the great bulk of the crop comes from the States of Pará and Amazonas. During the four months from July 1 to October 31 of the present year, of the 5,332 tons of rubber which has reached Pará from all parts of the Amazon Valley 1 per cent has come from Bolivia, 5½ per cent from Peru, 44 per cent from the State of Pará, and 49½ per cent from the State of Amazonas.

#### THE RUBBER TREES.

This rubber is all the product of trees. That which comes from Peru is said to be from a different tree from the one which produces the rubber found in Brazil, and the mode of gathering the rubber is also quite different. The name of this tree I have been unable to learn.

The rubber trees in the Brazilian part of the Amazon Valley belong mostly to one genus, *Siphonia*, or, according to some authors, to one species, there being about half a dozen different varieties. The popular name for all these varieties is *seringueira*.

Herbert H. Smith, in his "Brazil, the Amazons, and the Coast," p. 82 (Scribner's, 1879), speaking of the rubber-producing trees of the Amazon, appends a footnote as follows: "*Siphonia*, several species are admitted, of which this appears to be the true *S. elastica*."

The illiterate rubber gatherers affirm that there are different kinds of rubber trees (*seringueiras*) resembling each other; but some of them declare that they do not waste their time gathering the milk from any but the one "right kind," which is probably the tree Smith refers to in the note given above as the "true *S. elastica*." However, it is more than probable that those rubber gatherers who mix mandioca meal, gravel, nails, leaves, etc., with their rubber, would have no scruples about using an inferior quality of milk when obtainable. The *Siphonia elastica* is, however, a well-known and easily recognized tree, and abounds in large numbers even within the limits of this city. It is usually from 30 to 45 or more feet in height, and from 12 to 30 inches in diameter at the base, rapid growing, and soft wood. It is found scattered at intervals through the low forest lands, scarcely ever in groups.

To get a correct idea of the *modus operandi* of gathering and preparing the rubber, it is necessary to have some notion of the circumstances and surroundings, which also include the business customs and ways of the city and forest people.

## TRADERS AND OWNERS.

The traders (negociantes) in the rubber country are generally rough-and-ready Portuguese or Brazilians, the larger part of them with little or no capital of their own when accounts are all balanced.

Very many of the rubber-swamp claims "belong," off and on, to business houses in Pará and Manáos. These they are ready to sell or rent. They, as a rule, prefer the former, as they often get the swamp claim back again, through the failure or death of the purchaser, in a few years, and for, perhaps, a fifth part of the price they sold it to him for. The unfortunate widow and orphans, when there are any, are shoved out into the forest penniless. It is said that on the upper river, the widow, if young and attractive, is often bargained off to another trader, and the choice given her to become his mistress or die in the forest, or worse.

The margins of the larger navigable rivers have been generally "prospected," and the most valuable rubber forests are now "owned" by some one, although there are immense tracts of unexplored territory on innumerable small tributaries, to be reached by canoes or small steam launches. The first title of a rubber swamp is generally determined by discovery and first possession. Frequently this remains the only title for years, and on the upper tributaries this is especially the case. The legal survey and purchase of the land from the Government being effected only when the land passes into the hands of the capitalists who receive it in payment of debt.

Meanwhile, the owner who preëmpted it must prove his right to it by constant rifle vigilance. No one leaves his hut without his sixteen-charge repeating rifle. There exists a class of desperadoes or "border ruffians," called in the frontier language "capangas." Many of the traders, both owners and renters of rubber swamps, have their gangs of "capangas" who are hired expressly for the purpose of maintaining the forest claim in question. Feuds often arise which at last end in a massacre and burn out. Only a few weeks since, such a massacre was surprised by a steamer suddenly rounding a bend on the river Jurua. Fortunately one woman had been tied to a tree to be kept until after the trading station was fired. She was rescued, and her testimony resulted in the arrest of thirty criminals implicated in the massacre. But generally the attack is not so daring; the night is chosen for the slaughter, and the criminals are undetected, though not usually unknown. It is a common saying that "he who has rubber will not go to jail."

Sometimes there is more formality even in the attack, and something like the rules of civilized warfare are observed. Capt. Guilherme G. Hoepfner, of the steamer *Eufrosina*, three or four years ago, witnessed a formal battle between two gangs of capangas, headed by their employers, who were disputing the right to build a shanty for trading supplies at the confluence of two little rivers. The captain spent nearly the whole night before trying to persuade the stronger party to leave the other

in the rightful possession of the point of land he had proper possession of, but to no avail. In the morning more than 2,000 shots were exchanged across the little river from the repeating rifles, all of which resulted in one bullet hole through the shirt of the leader of the attacking party. He immediately stuck up a piece of white cloth on a stick from behind his stump, and the firing ceased. A few minutes later he was in his canoe with his capangas and paddling unmolested down the stream in retreat.

Such was the state of things formerly on the Lower Amazon, but law has gradually taken the place of brute force as far as land titles are concerned.

#### ENTERING BUSINESS.

Now, when a man decides to go into business as a trader, having but little capital, as is the case most frequently, he goes to some one of the native business houses which deal directly with the traders and are called "casas aviadoras," or "furnishing houses." With the firm he makes a bargain to take one of their rubber swamp claims and work it for one or more seasons for a stipulated compensation. He gathers up a number of persons—Indians, negroes, half-breeds, white men—any sort of fellows that he can induce to go with him for the season. He obtains on credit from the firm supplies for his company and goes to the swamp. He probably finds the principal shanty (barracão) still standing from the previous year; but the thatch roof will need some mending or renewing, as also the wattle and daub sides. This will be the trader's headquarters for provisioning his rubber gatherers. The men will build their huts for their own shelter. These are near the river brink, usually. Poles are driven into the mud, and on these a floor of small palm trunks is laid. Taller poles support a palm thatch roof, and the hut is considered finished. If any of them have brought a woman along they may make a room for her convenience by partitioning off part of the floor with palm leaves. In two or three days their homes are finished and they turn their attention to the forest paths, which they must clear out and open to reach the rubber trees; for since the previous season they are overgrown by the luxurious tropical vegetation.

It is the closing of the rainy season, May or June on the lower Amazon, when the milk of the rubber tree begins to be fit for gathering.

#### BUSINESS IN THE SWAMP.

Each laborer rents from the trader a certain number of paths (estradas), so that he will have one hundred to one hundred and fifty trees to work. The rent he is to pay to the trader is 20 per cent of the rubber yielded by the paths he takes. It is, further, "swamp law" that the gatherer is to obtain all his supplies from his trader and turn in to him all his rubber. Each gatherer has his own private mark, which he



puts on his rubber, and it is shipped to Para to the furnishing house, where it is weighed and each gatherer is credited with the market value of the rubber on the date of arrival. The trader is obliged by the "custom-made" swamp law to turn in to his furnishing house all the rubber which the gatherer has in like manner been obliged to turn in to him. Peddlers in canoes visit the rubber gatherers, and by an easy game of hide and seek smuggle in provisions to the gatherers and smuggle away rubber, just as steamer captains carry cash to purchase and smuggle away rubber from the traders, thus relieving the terrible monopoly which this credit system has thus rendered lawful. But the relief is small, as the canoe peddlers do not peddle just for the pleasure of peddling.

#### PROVISIONS.

The provisions which the rubber gatherer receives consist mostly of salt fish, jerked beef, salt, sugar, coffee, mandioca meal, and rum. The rum should have been placed first in the list and repeated with each item, for the average rubber gatherer never orders salt fish without rum, nor jerked beef, nor salt, nor sugar, nor anything else without heading the list with rum (*cachaça*). These provisions have paid a profit of from 25 to 50 per cent or more to the furnishing house. The trader also puts an equal profit for himself on the price for the provisions. The freight is also no light matter; so that the rubber gatherer has to pay two, three, or four times the Para price for the plainest necessities of animal life. What the miserably fed swamp laborer pays for his mandioca meal, salt fish, and rum would give him excellent boarding-house fare in almost any city in the United States.

#### WHITE SLAVERY.

In addition to what I have already said concerning the exorbitance, justified in part by the great risks, but none the less oppressive upon the poor laborers, the following translation from an article published by the *Conselheiro Paes de Andrade* in the paper, "*A Republica*," of this city, on the 11th instant, will help to understand the desperate fight which the poor rubber gatherer has to make for his existence. The author is the same *Conselheiro Paes de Andrade* whose valuable series of articles on land property titles in Para\* were recently sent to the State Department by this consulate. He says:

The rubber gatherer obtains fabulous, profits during four months of the year—that is, while he works; but he spends lavishly, without remembering the coming winter.

From his first year onward the laborer loses his independence and mortgages his future.

Debt confronts him from the very start, which, instead of being paid off, grows upon him until the laborer is reduced to the necessity of a life of disguised slavery.

If he dislikes his employer because he maltreats him, he is sold to another employer for one, two, or three contos of reis (\$500 to \$1,500.)

---

\*The article referred to by the consul follows this report.

These sales are made without cash payment, but the poor laborer is obliged to pay the debt with his labor, and he remains perpetually enslaved, because he continues to follow the same kind of a life without paying up anything.

The business is bad for all concerned.

The capitalist, the furnishing merchant, trusts his capital to the venturesome employer of labor, the country trader located in the rubber swamp, of which he is the owner or renter, and he bears the expenditures of the rubber gatherer, for whom he has paid an enormous debt to his former employer.

If rubber brings a good price—that is, if the year is good—the employer of the laborers saves himself and the capitalist, but the laborer remains always enslaved; but if the year is financially bad, the capitalist breaks; the tricky trader changes his house, and gets his new furnisher to buy for a third of their value the paper of the unfortunate man who broke, and he goes to pay up all his debit to the liquidators of the broken house, thus profiting by the misfortune of the one who helped him on.

Meanwhile no discount is made on the debts of the laborers, of whom he then becomes master and possessor, often exercising his lordship even over the poor man's family. \* \* \*

The above quotation reveals but a small part of the crookedness that is practiced in the rubber swamps. What the Conselheiro has stated is all "legitimate" business in rubber circles, and censured only by the sufferers and such high-minded men as he. The confessedly fraudulent methods of cheating and robbing, which the perpetrators prefer not to confess, are multitudinous.

#### RUBBER GATHERERS.

The rubber gatherer rolls out of his hammock as soon as it is light in the morning, takes his gulp of rum and his calabash of coffee, starts out to visit his rubber trees. He wears a short pair of breeches, and sometimes a shirt. He goes barefoot, for he must wade through the swamp mud and ooze of the tide up to his knees, and often up to his waist in water. He takes a basket full of earthenware gill cups, a hunk of adhesive clay, and a little narrow-bladed hatchet.

If he adopts the most approved method of tapping the trees, he reaches as high as he can with his hatchet, making an incision in the bark, but not reaching through to the wood. The milk immediately begins to issue in rapid drops or little streams. With a spat of the adhesive clay he immediately fastens one of his little gill clay cups just below the bleeding gash, and molds the clay so as to make all the rubber milk flow into the cup. Three such gashes, at equal distances around the tree, and at an equal height, is the rule. The next day he will make three more gashes in the same way, just a little below these three, and so continue, until by the end of the season he will have reached the level of the ground. Each of his 100 or 150 trees is treated in the same way, and he returns home after having traveled from 3 to 5 miles, barefoot and almost naked, through thorny thicket and malarial steaming swamp.

## COAGULATING THE MILK.

When he reaches his hut again he takes another gulp from the demijohn, snatches a breakfast of salt fish and mandioca meal, which are often moldy from the reeking damp of the swamp, and then starts out again with his calabash buckets to gather the milk, which by this time has ceased to flow. His gill cups are full, or nearly so, and when he reaches home he has milk enough to make four kilos of rubber, on an average. The next task is the coagulation of this milk. For this purpose he has a jug-shaped furnace, made of earthenware, called a *boião*, open at bottom and top, and with a small aperture at the side to admit the air for the combustion. In this piece of furniture he builds a fire, or rather a smudge, with the nuts of the inaja or urucury palm. The dense black smoke which rolls from the open top of the *boião* is the reagent which coagulates the milk. For this purpose the rubber gatherer has a circular-bladed paddle, like the paddle of a canoe, which he smears over with clay so that the rubber will not adhere to it. This is suspended by means of a cord from the limb of a tree just above the smudge. The milk is poured over the blade of the paddle, which is then turned over and round about in the smoke, and in a few moments the film of rubber is coagulated. The same process is repeated of wetting with milk and smoking the growing lump until it reaches the weight of from 5 to 25 kilos or more. Then it is slipped off from the paddle as a mitten is pulled off from one's hand. This ball is the crude rubber of commerce. If the coagulating has been carefully done it is "fine" rubber; if carelessly done, and the ball on being cut open at the exporting warehouse shows signs of poorly-coagulated milk or slight mixtures of foreign substances, such as mandioca meal, it is classified as "middling fine" (*entrefina*). There is also a coarser grade still, called *sernamby*, the native Indian word for "shells." This grade is composed of the scraps and bits that have dried without coagulation proper, especially the linings that form in the little earthenware cups and in the calabashes and buckets used in handling the milk, as also the drippings that run down the trees from accidental wounds. These are all rolled up together in a mass and would bring as good a price as the middling fine, were it not for the leaves and other rubbish that manage "innocently" to stow themselves away in the lump.

## CAOUTCHOUC.

The method of gathering and preparing the caoutchouc of Peru is to fell the tree and cut it up into bits, limbs and all, and let the milk run out from the wood into hollows dug in the ground. It is then coagulated in these pools by mixing it with ordinary soap. It produces a most vile smelling compound which sells for about the same price as Para sernamby.

Other methods of coagulation have been tried, but none have given such satisfactory results as the laborious method of fumigation. Alum stirred into the milk will coagulate it rapidly and with far less labor, but the rubber thus prepared is of poorer quality.

*Statement showing the exports of rubber from Para, by qualities, in 1888, 1889, and 1890.*

Year.	Fine.	Medium.	Coarse.	Caoût-chouc.	Total.
	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.
To the United States:					
1888 .....	4,800,617	899,491	2,492,045	643,902	8,837,145
1889 .....	4,750,102	337,519	2,811,377	506,940	9,095,938
1890 .....	5,211,813	867,977	2,934,899	577,276	9,591,965
To Europe:					
1888 .....	4,193,726	423,200	1,095,080	411,970	6,123,976
1889 .....	4,617,708	659,384	1,266,675	249,892	6,793,695
1890 .....	4,480,668	636,383	1,299,525	286,980	6,802,956

## RESUMÉ.

TO—	1886.	1887.	1888.	1889.	1890.
United States .....	7,970	8,528	8,887	9,096	9,502
Europe .....	5,036	5,558	6,124	6,794	6,893
Total .....	13,006	14,086	15,011	15,890	16,395

*Rubber receipts at Para.*

Month.	1886.	1887.	1888.	1889.	1890.
	Tons.	Tons.	Tons.	Tons.	Tons.
January .....	1,520	1,345	2,990	2,900	2,330
February .....	1,065	1,260	1,390	1,480	1,310
March .....	1,220	1,300	1,260	1,440	1,700
April .....	745	490	830	940	870
May .....	420	540	885	740	660
June .....	430	520	600	640	640
July .....	560	780	670	670	700
August .....	935	1,220	1,090	1,020	1,100
September .....	1,180	1,210	1,080	1,130	1,430
October .....	1,680	1,465	1,580	1,560	1,760
November .....	1,350	1,900	1,080	1,640	1,880
December .....	2,235	1,950	1,730	1,780	2,190
Total .....	13,340	13,880	15,085	15,940	16,570

Stock on hand January 1, 1890 .....	tons.. 1,015
Receipts in 1890 .....	16,570
Exports in 1890 .....	16,395
Stock on hand January 1, 1891 .....	1,190

*Rubber quotations in Para.*

Months.	1890.							
	Island rubber.				Amazon rubber.			
	Prices.		Exchange.*		Prices.		Exchange.*	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
	<i>Reis.</i>	<i>Reis.</i>			<i>Reis.</i>	<i>Reis.</i>		
Jan.....	1,850-1,000	2,000-1,150	27 $\frac{7}{8}$	27 $\frac{7}{8}$	1,950-1,100	2,100-1,250	27 $\frac{7}{8}$	27 $\frac{7}{8}$
Feb.....	1,800-1,000	1,850-1,050	27 $\frac{1}{2}$	28	1,850-1,075	1,900-1,100	27 $\frac{1}{2}$	28
Mar.....	1,700-900	1,850-1,050	28 $\frac{1}{2}$	28	1,800-1,000	1,900-1,125	28 $\frac{1}{2}$	28 $\frac{1}{2}$
Apr.....	1,700-900	1,900-1,100	28 $\frac{1}{2}$	27 $\frac{1}{2}$	1,850-1,050	2,000-1,200	28 $\frac{1}{2}$	27 $\frac{1}{2}$
May.....	1,900-1,100	1,950-1,100	27 $\frac{1}{2}$	27 $\frac{1}{2}$	2,000-1,200	2,050-1,250	27 $\frac{1}{2}$	27
June.....	1,800-1,000	1,900-1,100	26 $\frac{1}{2}$	27 $\frac{1}{2}$	1,950-1,150	2,100-1,250	26 $\frac{1}{2}$	26 $\frac{1}{2}$
July.....	1,700-900	1,800-1,000	27 $\frac{1}{2}$	27 $\frac{1}{2}$	1,850-1,000	1,950-1,150	27 $\frac{1}{2}$	27 $\frac{1}{2}$
Aug.....	1,700-900	1,750-950	27 $\frac{1}{2}$	27 $\frac{1}{2}$	1,800-1,000	1,800-1,000	27 $\frac{1}{2}$	27 $\frac{1}{2}$
Sept.....	1,750-950	1,870-1,100	27 $\frac{1}{2}$	28	1,850-1,050	1,970-1,200	27 $\frac{1}{2}$	28
Oct.....	1,870-1,100	2,000-1,250	28	28	1,970-1,200	2,100-1,300	28	28
Nov.....	1,970-1,200	2,100-1,300	28	27 $\frac{1}{2}$	2,100-1,300	2,175-1,450	28	27 $\frac{1}{2}$
Dec.....	2,100-1,300	2,480-1,500	27 $\frac{1}{2}$	25 $\frac{1}{2}$	2,150-1,400	2,550-1,650	27 $\frac{1}{2}$	25 $\frac{1}{2}$

\* London.

Months.	1890.							
	Island rubber.				Amazon rubber.			
	Prices.		Exchange.		Prices.		Exchange.	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
	<i>Reis.</i>	<i>Reis.</i>			<i>Reis.</i>	<i>Reis.</i>		
Jan.....	2,950-1,250	2,900-1,400	25	26	2,070-1,270	2,450-1,550	25 $\frac{1}{2}$	25
Feb.....	2,200-1,400	2,550-1,650	24 $\frac{5}{8}$	24 $\frac{5}{8}$	2,350-1,550	2,650-1,750	24 $\frac{5}{8}$	24 $\frac{5}{8}$
Mar.....	2,600-1,700	3,000-2,100	23 $\frac{1}{2}$	23 $\frac{1}{2}$	2,750-1,800	3,200-2,300	24	22 $\frac{1}{2}$
Apr.....	2,850-1,950	3,300-2,400	20 $\frac{1}{2}$	22 $\frac{1}{2}$	3,025-2,125	3,500-2,600	22 $\frac{1}{2}$	20 $\frac{1}{2}$
May.....	3,250-2,250	3,350-2,350	21 $\frac{1}{2}$	21	3,500-2,600	3,500-2,600	21	21 $\frac{1}{2}$
June.....	3,000-2,000	3,350-2,350	21 $\frac{1}{2}$	22 $\frac{1}{2}$	3,200-2,100	3,500-2,600	22 $\frac{1}{2}$	21 $\frac{1}{2}$
July.....	3,000-2,000	3,100-2,050	22 $\frac{1}{2}$	23 $\frac{1}{2}$	3,100-2,050	3,150-2,150	23 $\frac{1}{2}$	23 $\frac{1}{2}$
Aug.....	3,100-2,000	3,300-2,300	22 $\frac{1}{2}$	23 $\frac{1}{2}$	3,150-2,150	3,500-2,500	23 $\frac{1}{2}$	22 $\frac{1}{2}$
Sept.....	2,900-1,900	3,200-2,300	22 $\frac{1}{2}$	22 $\frac{1}{2}$	3,320-2,320	3,500-2,500	22 $\frac{1}{2}$	22 $\frac{1}{2}$
Oct.....	2,350-1,250	3,000-2,000	22 $\frac{1}{2}$	24 $\frac{1}{2}$	2,600-1,600	3,200-2,200	24 $\frac{1}{2}$	23 $\frac{1}{2}$
Nov.....	2,450-1,450	2,550-1,550	23 $\frac{1}{2}$	23	2,525-1,525	2,800-1,800	24 $\frac{1}{2}$	22 $\frac{1}{2}$
Dec.....	2,250-1,250	2,800-1,800	21 $\frac{1}{2}$	22 $\frac{1}{2}$	2,500-1,500	3,000-2,000	22 $\frac{1}{2}$	21 $\frac{1}{2}$

JOSEPH O. KERBEY,  
Consul.UNITED STATES CONSULATE,  
Para, January 16, 1891.

## THE AMAZON VALLEY.

REPORT BY CONSUL KERBEY, OF PARA.

## SUPPLEMENTARY REPORT.

I have the honor to submit herewith the detailed statement or the statistics on rubber which I previously mentioned as part of my exhaustive report on this subject.

This matter could not be compiled until after the close of the year 1890, and as a matter of special favor to me it goes by first opportunity thereafter.

The statement is in every respect reliable and exceedingly important in this, that these figures will correct some false impressions. I submit it without comment, but it will be observed that the American firms are not the heavy or principal shippers and do not control the rubber trade.

Two-thirds of the exported rubber goes to the United States, but notice in other reports that three-fourths if not four-fifths of the imports to pay for this rubber comes from Europe.

There is no effort here to introduce American trade on the part of the rubber dealers.

In this connection may I be permitted to say that my efforts to secure honest reports as consul have served only, it would seem, to antagonize the rubber interest. I am in no sense indebted to any rubber firm or to any American firm for these facts and figures.

Mr. José Agnes Wabrin, an accomplished Brazilian gentleman, educated in Germany, and long a resident of Para, manager of the extensive Companhia Mercantil do Para, has kindly assisted me in my researches, and I desire that suitable acknowledgment be made to this gentleman.

*Statement showing the quantities of crude rubber exported from Para during the year 1890.*

Shippers.	United States.				
	Fine.	Medium.	Coarse.	Caucho.	Total.
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>
Pusinelli, Prüssse & Co .....	689,814	73,836	339,902	143,490	1,246,982
La Poque da Costa & Co .....	722,345	156,539	767,641	49,737	1,696,762
Companhia Mercantil .....	765,437	141,561	409,861	3,815	1,320,674
Robinson & Norton, Norton & Co.* .....	979,501	143,440	459,828	57,424	1,640,193
J. Vianna & Co. ....	341,192	82,367	121,022	3,618	548,199
R. F. Sears & Co.† .....	429,292	50,667	210,782	4,314	695,055
Denis Crouan & Co.† .....	29,920	4,080	13,960	.....	47,980
W. Brambeer & Co .....	209,248	15,470	161,512	.....	386,230
Singlehurst, Brockle't & Co .....	101,322	11,889	94,069	220,225	427,505
Sundry small shippers exported direct	40,216	665	39,799	48,030	128,710
from Manaos .....	903,026	187,463	316,503	46,683	1,453,675
Total .....	5,211,813	867,977	2,934,899	577,276	9,591,965

Shippers.	Europe.					Total.
	Fine.	Medium.	Coarse.	Caucho.	Total.	
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>
Pusinelli, Prüssse & Co .....	1,146,468	175,718	222,551	67,804	1,612,531	2,859,513
La Poque da Costa & Co .....	594,428	47,234	197,683	.....	839,346	2,536,108
Companhia Mercantil .....	324,460	35,230	155,780	.....	515,470	1,836,144
Robinson & Norton, Norton & Co.* .....	170	.....	300	.....	470	1,640,663
J. Vianna & Co .....	117,554	20,787	89,307	.....	227,648	775,847
R. F. Sears & Co.† .....	50,760	960	11,691	.....	63,411	758,466
Denis Crouan & Co.† .....	411,600	51,810	120,320	1,980	585,710	633,690
W. Brambeer & Co .....	200,067	19,720	848	.....	220,635	606,865
Singlehurst, Brockle't & Co .....	108,632	13,923	23,088	7,745	153,388	580,893
Sundry small shippers exported direct	217,930	19,971	79,551	23,508	345,960	474,670
from Manaos .....	1,308,009	251,030	398,406	280,942	2,238,387	3,692,062
Total .....	4,480,068	636,383	1,299,525	386,980	6,802,956	16,394,921

\* Flint & Co., of New York.

† W. R. Grace & Co., of New York.

## RÉSUMÉ.

Description.	United States.	Europe.	Total.
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>
Fine.....	5,211,813	4,480,068	9,691,881
Medium.....	867,977	636,383	1,504,360
Coarse.....	2,934,899	1,299,525	4,234,424
Caucho.....	577,276	386,980	964,256
	9,591,965	6,802,956	16,394,921

*Statement of rubber exported from Para for month of October, 1890.*

Exporting firms.	To the United States.					To Europe.				
	Fine.	Extra fine.	Sernamby.	Caucho.	Total.	Fine.	Extra fine.	Sernamby.	Caucho.	Total.
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>
Latocque, da Costa & Co	80,107	14,560	78,615	.....	173,282	150,171	5,878	65,681	.....	221,730
Pusinelli, Prusse & Co	44,208	6,590	8,260	17,287	76,345	128,663	21,385	33,569	.....	183,587
Companhia Mercantil do Para.	45,922	16,179	26,166	.....	88,267	92,310	3,230	28,280	.....	123,820
Robinson & Norton	108,630	15,470	47,940	516	172,556	.....	.....	.....	.....	.....
Denis Cronan & Co.	13,600	2,550	4,800	.....	20,950	43,210	4,890	15,440	.....	63,540
R. F. Sears & Co	30,280	4,760	13,500	.....	48,520	20,060	.....	6,900	.....	26,960
W. Brambeer & Co	31,323	2,380	11,700	.....	45,403	9,690	850	.....	.....	10,540
Singlehurst, Brocklehurst & Co	1,137	181	5,007	10,443	16,768	2,436	174	175	.....	2,785
Ivianna & Co	8,960	3,680	1,960	.....	14,600	.....	.....	.....	.....	.....
Diversos Exportadores.	.....	.....	520	6,126	6,646	58,449	1,997	11,022	825	72,293
Exported direct from Manaus	.....	.....	.....	.....	.....	118,888	9,323	25,482	18,564	172,257
	364,147	66,350	198,468	34,372	663,337	623,847	47,727	186,549	19,389	877,512

To America..... 663,337  
 To Europe..... 877,512

Total ..... 1,540,849

The significant feature is that previous statements have shown that two-thirds of the rubber exported has gone to the United States. This report indicates a change in the tide, three-fourths having gone to Europe during October.

As indicating the nationality of the carrying trade, I append here with a statement showing by what steamers the rubber was shipped.

Flag.	Steamers.	Whither.	Quantities.
			<i>Kilos.</i>
British.....	Amazonense	Europe	472,835
Do.....	Gregory	America	234,004
American.....	Allianca	do	137,344
British.....	Lafranca	Europe	247,297
American.....	Lequarana	America	129,520
British.....	Paraense	do	162,469
Do.....	Manuense	Europe	157,380
Total.....			1,540,849

British vessels took to America..... 396,473  
 American vessels took to America..... 266,864

This indicates that the English do the bulk of carrying to the United States as well as all of that to Europe. They also control the trade from Manaos.

J. O. KERBEY,  
Consul.

UNITED STATES CONSULATE,  
Para, January 9, 1891.

#### BAHIA.

REPORT BY CONSUL BURKE.

#### ACKNOWLEDGMENT.

I would say that I am indebted to Mr. S. S. Schindler, of New Haven, Conn., for the information herein contained relative to the business of gathering the milk and the process employed by the gatherers.

Mr. Schindler seems thoroughly conversant with the methods employed. He was in the business for some time, I believe, and invented a process of immediately converting the milk into rubber, as well as for preserving the milk for a long time after its extraction from the tree and then converting it as quickly as if it were freshly taken from the tree.

#### THE RUBBER TREE.

Caoutchouc is yielded by the tree whose botanical name is *Hancornia speciosa*.

The tree commonly known as the *mangaba*, or *mangabeira* as here called, belongs to the family of Apocynaceæ. It is of medium size, very graceful in appearance, with drooping branches, and small oblong leaves beautifully and finely veined and rounded at the apex. The entire tree is of a rich, deep, glossy green. A forest of these trees is a glorious sight, presenting as it does such a strikingly beautiful contrast to the vegetation and foliage surrounding it and the cloudless blue of the tropical sky.

The mangabeira yields a thick viscous juice or milk of a bitter taste, from which the rubber is prepared. The tree is very much appreciated by the natives because of a fruit which it bears. This fruit has a yellowish color marked with reddish spots, and is about the size of a peach plum. It has a fine aroma and a delicious taste, but is fit to be eaten only when it falls from the tree; it is then perfectly ripe. A beverage is also made from the juice of the fruit which is most delectable to the taste, and conserves or *doces*, which are very palatable for Brazilians. *Doces* are also made from the fruit of the goyava, the bitter orange, the citron, etc.

This tree in general is found only on loose, sandy soil, such as, without fertilizing, would be unproductive for cereals, tobacco, coffee, sugar cane, and in fact for most classes of agricultural products.



## RUBBER GATHERING.

The method of conducting the business of rubber gathering properly should be as follows:

A person supplies himself with about twenty small, round tins and a large knife (*facão*). With this *facão* he should make, at or a little distance from one another, around the trunk of the tree, a few oblique incisions sloping downward. This done, the tins should be placed at the foot of the tree to receive the milk as it exudes from the tree, and when full should be emptied into a large tin or barrel placed near by. Each person engaged in the business can look after from 20 to 30 trees during a day, and if properly done can collect from 10 to 15 kilograms of clean milk. If too many incisions are made in the tree, unless it is a very large one, as are those in the interior of the States of Minas, Geraes, and Goyas, these incisions will weaken or kill it. This is too often the case with the *Seringeira* tree of the State of Para. If the *mangabeira* be fairly treated it will yield a fair quantity of milk every three or four months, and would doubtless prove a paying business to owners of large tracts of land that are really unproductive for any other purpose. For coagulating the milk there are several processes, some of these producing a very pure commercial rubber, others throwing upon the market a poor quality mixed with bark and sand.

It is owing to the fact that proper care is not exercised in the collecting of the milk that is the cause of the poor quality of rubber which often finds its way into the market. Too many incisions are made in the tree, and the milk exuding too freely runs down the trunk to the ground, from whence it is gathered up, mixed with dirt and rubbish, then rolled into balls and a layer of clean milk worked over it, when it is ready to be worked off on some purchaser as rubber of a superior quality. The largest producers of *mangabeira* rubber in this section of Brazil are in the States of Minas and Goyez, from whence about one-half is shipped to Rio de Janeiro, the other half to Bahia. That to Bahia is brought some distance down the river San Francisco, then by mules and, lastly, by rail till it arrives at Bahia. The States of Pernambuco and Ceará have forests of *mangabeira* trees also, as well as that part of the State of San Paulo bordering upon the State of Minas.

As far as I can learn, no American capital is employed in rubber gathering.

## EXPORT OF CRUDE RUBBER.

The exportation of crude rubber for the year 1889, according to the custom-house figures, was as follows:

	Kilos.
To Germany .....	90,535
To United States.....	40,699
To England.....	7,174
To Portugal.....	216

I would say the figures as given by the custom-house of the exportation to the United States differ from those recorded in the invoice book in this consulate. The invoice book shows there were shipped to the United States during 1889 but 29,840 kilos, as against the 40,699 kilos as given by the custom-house for the same year.

#### EXPORT DUTY.

There is an export duty of 14 per cent. The amount of the revenue from it annually I have not been able to obtain.

No fear of the exhaustion of the supply seems to be expressed on this head.

#### CULTIVATION.

No experiments whatever have been made in the cultivation of the rubber tree as far as I am informed.

It is believed it might be cultivated with success and with profit under different circumstances. At present scarcity of labor for this kind of business is the greatest drawback to the successful culture of this article, as I am informed. It is strange, too, that while laborers are said to be scarce the wages paid to all classes of labor are very low. As the negroes, who constitute the main part of the laboring population, can live and clothe themselves, as they are clothed, for very little, they have no desire to labor excepting to such an extent as to provide themselves, as a rule, for what is absolutely necessary. And, further, they seem to prefer the city with even less wages, on the whole, than the country, with more at the end of the year because of steady employment.

#### IMPORTATIONS.

There are no manufactures of India rubber in this consular district. The importation of rubber goods into this district is very limited. From statistics on this head, given me by the customs authorities, the importation for 1889 was as follows:

From Germany, 1,885 kilos; value, 4,970 milreis; duty, 2,386 milreis.

From United States, 80 kilos; value, 245 milreis; duty, 118 milreis.

From France, 1,110 kilos; value 5,680 milreis; duty, 2,777 milreis.

From England, 3,421 kilos; value, 8,580 milreis; duty, 4,118 milreis.

Portugal, 6 kilos; value, 7½ milreis; duty, 3½ milreis.

The above importation consisted of rubber coats, shoes, and boots, pipes or tubes, canes, combs, rubber for machinery—included in fact, every article of household use or wearing apparel into which rubber entered. Besides the above there were 17 kilos of celluloids, valued at 287 milreis, with a duty of 43 milreis, imported from France, and 84 kilos, valued at 1,126 milreis, with a duty of 169 milreis, imported from the United States during the same year. Am unable to obtain information as to the specific articles coming from the United States.

As may be observed, the whole value of the rubber manufactures imported is but a mere trifle. Coats, boots, and shoes of rubber are

a rarity. For the rainy season foreigners, as a rule, have a mackintosh, but rubbers rarely. Some Brazilians use a mackintosh also.

The entire value does not amount to 21,000 milreis for the year. For United States manufacturers to attempt to build up a trade in this line is, in my opinion, quite useless, for the chief reason that rubber goods for wear will never be used to any great extent in this country as long as the climate remains as it is.

For the nine months of the present year up to October 1 the value of the rubber goods or manufactures of rubber of all kinds imported amounted to 12,986 milreis only, which shows quite clearly it is a business not worth looking after.

As far as this district is concerned, the best thing for rubber manufacturers to do is to let this place entirely alone and seek to enter some field where rubber goods are wanted by the people. The statistics show there is no demand for this class of goods. The climate is against the wearing of such goods, excepting as stated—the lightest kind of rain coats—and these are chiefly confined to foreigners in their use.

*Duty on imports.*—The duty on imported manufactures of rubber runs from 600 reis per kilo, under the new tariff (this is the rate on rubber tubing) to 15 milreis per kilo on suspenders, suspensories, garters, elastics, etc., made with silk.

DAVID N. BURKE,  
*Consul.*

UNITED STATES CONSULATE,  
*Bahia, November 25, 1890.*

## COLOMBIA.

### BARRANQUILLA.

#### REPORT OF CONSUL NIOKEUS.

#### CRUDE RUBBER.

I have the honor to report that India rubber (*castilloa elastica* being the botanical name of the kind produced in Colombia) is a product of this district. The Magdalena River is more than 800 miles in length, and has a valley varying in width from 20 to 60 miles. One hundred miles from the mouth of the river the rubber tree abounds on either side, and for a thousand feet up the sides of the mountains. The rubber tree grows in great abundance along the banks of the San Jorge, the Cauca, the Nechi, the Le Brija, the Odon, the Carare, and the Cesar rivers.

Rubber (*castilloa elastica*) is yielded in Colombia by trees only; the rubber-producing vine is unknown, or at least not utilized, in this country for rubber. However, there are two varieties in the market here.

(1) That produced near the coast in the department of Bolivar and Antioquia, especially on the San Jorge River, of which the center of

trade is the town of Ayapel. This rubber is dark, mixed with sand and dirt, and needs to be pressed before it is shipped to the markets of America and Europe.

(2) That produced in the department of Tolima, in the interior of the country. This is yellowish, clean, and does not require to be pressed before shipment. It is superior to the coast rubber, and worth now in England 3s. to 3s. 3d. per pound. It is believed to be more carefully collected and prepared than the coast rubber.

#### GATHERING RUBBER.

The rubber tree grows in the tropical forests. The natives go into the woods on foot with their "machetes," carrying a small supply of food with them. They live in the forest from a few weeks to several months, according to the season of the year in which the trip is made; the sap running much more freely in the months of May and October, these months being the height of the rainy seasons. These gatherers during their stay in the forest support themselves by hunting game and gathering wild fruits and roots. They rarely carry with them either food or vessels for collecting the rubber, depending upon the forest to furnish both when they arrive at the place for their camp. They tap the trees, cutting them in this (V shape) and run the sap into troughs usually made of clay. Here in a short time it becomes thickened and solidifies in consequence of the evaporation of the liquid part. The natives then, in order to dry the rubber, take it from the trough and suspend it where the sun's rays can strike it gently. Sometimes it is exposed to a gentle fire instead. The juice has the consistency of cream, has a yellow color, and contains about 30 per cent of caoutchouc. When they have gathered as much as they can carry on their backs they carry it out to the nearest market, where it is bought for a little more than one-half what it brings in the Barranquilla market. It is then brought to Barranquilla, where it is prepared for the foreign market by pressing it.

Some years ago the natives used to cut down the tree, because the sap in this way ran more freely than from incisions as described; but the Government has now prohibited cutting it down, thereby preserving the tree, whose wound is healed in a few months after the incision is made, when it is ready again to send forth its blood for the arts of man.

I know of no American capital employed in the rubber trade in this district, either in gathering or otherwise. Merchants here buy and sell rubber as a part of their export business—no one making a specialty of rubber and no one, as far as I can learn, making any effort to increase or stimulate its product.

There is no export duty on rubber.

#### THE SUPPLY.

There is no fear expressed of the failure of the natural supply of rubber or the early decrease of the same. In my opinion, there is very

little prospect of a large increase in the supply as long as no effort is made by the manufacturers to displace the primitive methods used in this country in the gathering of rubber. The truth is, the supply of rubber in this part of the country is inexhaustible, but it needs some one to take hold of the industry and organize these natives into camps, as has been done by others, to increase the product of the hard woods in South America. These wood camps are usually managed by Americans, who select an elevated spot away from the malarial belt and build cheap shelters for the workmen.

If these native men had the modern appliances given them with which to tap the rubber tree, buckets to catch the juice as it flows from the tree, wooden troughs in which to dry the gum, proper food and shelter given them and a fair recompense for their labor (not a per diem, but a stated price per hundredweight), I am sure the supply of crude rubber could be increased far beyond any demand the world has for it to-day. But as long as the native Colombian is left to gather rubber in the present way and is paid for it a little more than one-half of what it is worth, there is not much inducement for him to increase the supply. It must be remembered that the population in the rubber districts is very small, but it is an easy matter to get men from other parts of the country if they are fed and paid properly. There is no place, I believe, in South America where the rubber gathering industry could be better carried on than from this port. The Magdalena is navigable for 800 miles, and its tributaries are also many of them navigable. Provisions for the men could be gotten easily and cheaply. The rubber could be gotten to this port with very little expense. That which is said of this region may be said also of the region west of this consulate. Camps ought to be organized in the Sinu River region as well as in the Atrato and Darien region. These three regions now furnish the chief supply of rubber that passes the consulate of Carthagena.

#### CULTURE OF THE RUBBER TREE.

I am informed by gentlemen who are familiar with the region of the San Jorge and Sinu rivers that the tree is cultivated there to some extent. I have myself seen trees which measured 18 inches in diameter. They grew from the seed and were cultivated for two or three years. They shoot up to an immense height before throwing off branches, and are not unlike the European ash in bark and foliage. I have no doubt the tree is susceptible of culture; but why cultivate, when millions of acres of forest are filled with it. It is a mistake to say that the rubber tree is being destroyed in this part of the world. There has been some increase in its product in the last three years, as is shown by tables appended.

I have seen no one who thinks that the cultivation of the rubber tree would be profitable for the reason given above.

## RUBBER EXPORTS.

The following are tables from the custom-house statistics at Barranquilla, showing the weight and value of rubber exported from the port of Sabanilla, Republic of Colombia, during the years 1886, 1887, 1888, and 1889; showing also the places to which the same was shipped:

*Year ending December 31, 1886.*

London.....	packages..	82
Liverpool.....	do....	82
Havre.....	do....	44
Paris.....	do....	213
New York.....	do....	998
Total.....	do....	1,419
Weight.....	kilograms..	*85,140
Value.....		†\$42,570

*Year ending December 31, 1887.*

London.....	packages....	1,286
Liverpool.....	do....	37
Havre.....	do....	171
Paris.....	do....	381
Bremen.....	do....	3
Hamburg.....	do....	54
New York.....	do....	1,334
Total.....	do....	3,266
Weight.....	kilograms..	*326,600
Value.....		†\$81,650

*Year ending December 31, 1888.*

London.....	packages..	1,353
Havre.....	do....	283
Paris.....	do....	262
Hamburg.....	do....	10
New York.....	do....	1,582
Total.....	do....	3,490
Weight.....	kilograms..	*349,000
Value.....		†\$87,250

*Year ending December 31, 1889.*

London.....	packages..	1,024
Havre.....	do....	193
Paris.....	do....	68
Hamburg.....	do....	75
New York.....	do....	1,283
Carthagena, Spain.....	do....	88
Total.....	do....	2,731
Weight.....	kilograms..	*273,100
Value.....		†\$68,275

\* Kilogram is in avoirdupois 2.2046 pounds.

† One dollar in United States gold is worth \$2 of Colombian currency, gold not being in circulation.

## IMPORTS OF RUBBER GOODS.

It is impossible to give value of importation, as requested. It would necessitate going over each invoice separately, and would delay the report too long. I give, however, the following table, showing the class of goods imported, the weight in kilograms, and from what places imported. This table covers the last eleven months, and is absolutely accurate according to the custom-house statistics, from which it has been compiled. The other questions under the head of "manufacturers of India rubber" are fully answered by saying there are no manufacturers of rubber in this country.

There is a duty of \$1.25 per kilogram, gross weight, on imported rubber goods.

The merchants inform me that there is no material difference as to quality in the American and other imported rubber goods, each country excelling in the class which it makes.

JOHNSON NICKEUS,  
Consul.

BARRANQUILLA, December 12, 1890.

## IMPORTS OF RUBBER GOODS.

Statement of importations of rubber through the Barranquilla custom-house for the eleven months ending August 31, 1890.

From—	Class of goods.	Packages.	Weight.	From—	Class of goods.	Packages.	Weight.
	<i>September, 1889.</i>		<i>Kilos.</i>		<i>October, 1889.</i>		<i>Kilos.</i>
New York...	Manufactured rubber, class not stated.....	4	181	New York...	Manufactured rubber...	3	189
	Rubber for machines.....	1	23		Rubber packing.....	2	48
	Rubber shoes.....	2	152		Rubber hose.....	6	362
	Rubber syringes.....	1	65		Total.....	11	599
	Rubber hose.....	3	254				
	Rubber combs.....	6	165	Paris.....	Rubber balls.....	2	158
	Rubber seals.....	2	1		Rubber cuffs and collars.....	1	37
	Rubber nipples.....	3	125		Rubber combs.....	3	229
	Total.....	22	966		Rubber springs.....	2	157
Havre.....	Rubber springs.....	1	98		Total.....	8	581
Paris.....	do.....	1	74				
London.....	do.....	2	87	Manchester...	Rubber springs.....	1	80
	Total for September.....	26	1,225		Rubber fine combs.....	1	79
	SUMMARY FOR SEPTEMBER.				Total.....	2	159
	Manufactured rubber.....	4	181	Hamburg....	Rubber springs.....	3	225
	Rubber for machines.....	1	23		SUMMARY FOR OCTOBER.		
	Rubber shoes.....	2	152		Rubber balls.....	2	158
	Rubber syringes.....	1	65		Manufactured rubber.....	3	189
	Rubber hose.....	3	254		Rubber cuffs and collars.....	1	37
	Rubber combs.....	6	165		Rubber packing.....	2	48
	Rubber springs.....	4	259		Rubber hose.....	6	362
	Rubber seals.....	2	1		Rubber combs.....	3	229
	Rubber nipples.....	3	125		Rubber fine combs.....	1	79
		26	1,225		Rubber springs.....	6	463
					Total.....	24	1,565

Statement of importations of rubber through the Barranquilla custom-house, etc.—Cont'd.

From—	Class of goods.	Packages.	Weight.	From—	Class of goods.	Packages.	Weight.
	<i>November, 1889.</i>		<i>Kilos.</i>		<i>January, 1890.</i>		<i>Kilos.</i>
New York	Rubber thimbles .....	1	1	New York	Rubber, manufactured.	2	128
	Rubber sheets .....	1	191		Rubber thread .....	1	75
	Total .....	2	192		Total .....	3	203
St. Nazaire	Manufactured rubber.	1	76	Havre	Rubber shoes .....	1	78
Paris	Rubber fine combs .....	2	161	Bordeaux	Rubber springs .....	2	160
Liverpool	Rubber ribbons .....	1	73	Paris	Rubber springs .....	3	203
	Rubber shoes .....	1	41		Rubber clothing .....	1	5
	Total .....	2	114		Rubber cloth .....	6	476
Hamburg	Manufactured rubber.	23	1,391		Total .....	10	684
	Rubber combs .....	1	60	Manchester	Rubber manufactured.	1	68
	Rubbersprings .....	1	80		Rubber cloth .....	34	2,595
	Total .....	25	1,531		Total .....	35	2,663
Bremen	Rubber combs .....	1	34	London	Rubber cloth .....	2	150
					Rubber tubes .....	1	70
	<b>SUMMARY FOR NOVEMBER.</b>				Total .....	3	220
	Rubber, manufactured.	24	1,467	Liverpool	Rubber cloth .....	2	148
	Rubber ribbons .....	1	73	Hamburg	Rubber combs .....	6	423
	Rubber thimbles .....	1	1		Rubber nipples .....	1	31
	Rubber sheets .....	1	191		Total .....	7	454
	Rubber combs .....	2	94		<b>SUMMARY FOR JANUARY.</b>		
	Rubber fine combs .....	2	161		Rubber manufactured.	3	196
	Rubber springs .....	1	80		Rubber thread .....	1	75
	Rubber shoes .....	1	41		Rubber combs .....	6	423
	Total .....	33	2,108		Rubber springs .....	5	363
	<i>December, 1889.</i>				Rubber clothing .....	1	5
New York	Rubber cord .....	1	16		Rubber cloth .....	44	3,369
	Rubber for machines .....	2	126		Rubber nipples .....	1	31
	Rubber stamps .....	3	58		Rubber tubes .....	1	70
	Rubber hose .....	2	80		Rubber shoes .....	1	78
	Rubber pouches .....	1	73		Total .....	63	4,610
	Total .....	9	358		<i>February, 1890.</i>		
St. Nazaire	Rubber, manufactured.	1	36	New York	Rubber for machines .....	1	134
Havre	Rubber tubes .....	4	185		Rubber springs .....	1	63
Paris	Manufactured rubber.	1	75		Rubber shoes .....	3	191
Manchester	Rubber cloth .....	15	1,097		Total .....	5	388
London	Rubber springs .....	1	13	Paris	Rubber cord .....	1	21
Liverpool	Rubber cloth .....	6	449		Rubber combs .....	1	104
Hamburg	Rubber balls .....	3	193		Total .....	2	125
	Rubber combs .....	5	344	Manchester	Rubber mouth pieces		
	Rubber shoes .....	1	67		for musical instru-		
	Total .....	9	604		ments .....	5	335
	<b>SUMMARY FOR DECEMBER.</b>				Rubber springs for		
	Rubber balls .....	3	193		shoes .....	1	49
	Rubber cord .....	1	16		Rubber tubes .....	1	143
	Rubber, manufactured.	2	111		Total .....	7	527
	Rubber for machines .....	2	126	Hamburg	Rubber, manufactured.	8	584
	Rubber stamps .....	3	58		Rubber combs .....	1	80
	Rubber hose .....	2	80		Rubber tucking combs.	2	72
	Rubber combs .....	5	344		Total .....	11	736
	Rubber pouches .....	1	73				
	Rubber springs .....	1	13				
	Rubber tubes .....	4	185				
	Rubber cloth .....	21	1,546				
	Rubber shoes .....	1	67				
	Total .....	48	2,812				



Statement of importations of rubber through the Barranquilla custom-house, etc.—Cont'd.

From—	Class of goods.	Packages.	Weight.	From—	Class of goods.	Packages.	Weight.
	<b>SUMMARY FOR FEBRUARY.</b>		<i>Kilos.</i>		<i>April, 1890—Continued.</i>		<i>Kilos.</i>
	Rubber mouth pieces.....	5	335	Paris .....	Rubber cuffs and collars.....	1	43
	Rubber for machines.....	1	134	Bordeaux.....	Rubber springs for shoes.....	1	42
	Rubber, manufactured.....	3	584				
	Rubber cord.....	1	21	Hamburg.....	Rubber, manufactured	1	86
	Rubber syringes.....	1	63		Rubber combs.....	1	50
	Rubber tucking combs.....	2	72		Rubber springs for shoes.....	1	75
	Rubber combs.....	2	184		Total .....	3	191
	Rubber springs for shoes.....	1	49		<b>SUMMARY FOR APRIL.</b>		
	Rubber tubes.....	1	143		Rubber boots.....	1	36
	Rubber shoes.....	3	191		Rubber, manufactured	2	73
	Total .....	25	1,776		Rubber cuffs and collars.....	1	43
	<i>March, 1890.</i>				Rubber combs.....	3	194
New York...	Rubber syringes.....	2	114		Rubber springs for shoes.....	2	117
	Rubber cloth.....	1	72		Total .....	9	463
	Total .....	3	186		<i>May, 1890.</i>		
Paris .....	Rubber combs.....	1	75	New York...	Rubber, manufactured	1	6
	Rubber springs.....	1	79		Rubber seals.....	1	1
	Rubber tubes.....	1	52		Rubber shoes.....	1	48
	Rubber cloth.....	2	103		Total .....	3	55
	Total .....	5	309				
Havre .....	Rubber elastics.....	1	64	Paris .....	Rubber shoes.....	1	64
	Rubber sheets.....	1	67		Rubber nipples.....	1	9
	Total .....	2	131		Total from Paris.....	2	73
London .....	Rubber for machines.....	1	20	Bordeaux...	Rubber combs.....	2	149
	Rubber combs.....	2	72		Rubber corks.....	1	20
	Total .....	3	92		Total from Bordeaux.....	3	169
Liverpool...	Rubber cloth.....	5	382		Rubber cord.....	1	88
Manchester..	Rubber springs.....	1	76	Liverpool...			
	Rubber cloth.....	21	1,604		<b>SUMMARY FOR MAY.</b>		
	Total .....	22	1,680		Rubber cord.....	1	88
Bordeaux...	Rubber combs.....	1	45		Rubber, manufactured	1	6
	Rubber cloth.....	2	216		Rubber shoes.....	1	64
	Total .....	3	261		Rubber combs.....	2	149
Hamburg....	Rubber, manufactured.	1	52		Rubber seals.....	1	1
	Rubber combs.....	3	173		Rubber nipples.....	1	9
	Rubber nipples.....	1	79		Rubber corks.....	1	20
	Total .....	5	304		Rubber shoes.....	1	48
	<b>SUMMARY FOR MARCH.</b>				Total .....	9	385
	Rubber for machines.....	1	20		<i>June, 1890.</i>		
	Rubber manufactured.....	1	52	New York...	Rubber, manufactured	3	110
	Rubber syringes.....	2	114		Rubber tubes.....	1	11
	Rubber elastics.....	1	64		Total .....	4	121
	Rubber sheets.....	1	67	Birmingham.	Rubber elastic.....	1	19
	Rubber combs.....	7	365		Rubber springs.....	1	73
	Rubber springs.....	2	155		Total .....	2	92
	Rubber cloth.....	31	2,377	Liverpool...	Rubber springs.....	1	71
	Rubber tubes.....	1	52	London .....	Rubber springs.....	1	80
	Rubber nipples.....	1	79	Manchester..	Rubber, manufactured	3	186
	Total .....	48	3,345		Rubber shoes.....	3	232
	<i>April, 1890.</i>				Total .....	6	418
New York...	Rubber combs.....	2	144				
Manchester..	Rubber, manufactured.	1	7				
Liverpool...	Rubber boots.....	1	36				

*Statement of importations of rubber through the Barranquilla custom-house, etc.—Cont'd.*

From—	Class of goods.	Packages.	Weight.	From—	Class of goods.	Packages.	Weight.
	<i>June, 1890—Continued.</i>		<i>Kilos.</i>		<i>July, 1890—Continued.</i>		<i>Kilos.</i>
Paris .....	Rubber springs.....	1	68	Liverpool....	Rubber cord .....	2	159
	Rubber corks.....	1	26		Rubber cloth pouches..	1	120
	Total .....	2	94		Total .....	3	279
Havre .....	Rubber, manufactured.	1	82	Manchester..	Rubber protectors for		
	Rubber combs .....	3	158		riders .....	6	477
	Total .....	4	240		Rubber springs for		
	SUMMARY FOR JUNE.				shoes .....	3	214
	Rubber, manufactured.	7	378		Total .....	9	691
	Rubber elastics.....	1	19	Hamburg....	Rubber combs .....	1	64
	Rubber combs .....	3	158		Rubber springs for		
	Rubber springs.....	4	292		shoes .....	1	82
	Rubber corks.....	1	26		Total .....	2	146
	Rubber tubes.....	1	11		SUMMARY FOR JULY.		
	Rubber shoes.....	3	232		Rubber protectors for		
	Total .....	20	1,116		riders .....	6	477
	<i>July, 1890.</i>				Rubber cord .....	2	159
New York....	Rubber stamps .....	1	1		Rubber stamps .....	1	1
Paris .....	Rubber springs for				Rubber combs .....	1	64
	shoes .....	5	410		Rubber cloth pouches	1	120
					Rubber springs for		
					shoes .....	9	706
					Total .....	20	1,527

## CARTHAGENA.

### REPORT BY CONSUL CROFT.

My residence in this country has not been sufficiently long to enable me to write from personal observation, but I have endeavored to obtain the information desired from gentlemen of intelligence who are natives of the country, and from those of long residence here who have been engaged in the business of collecting the crude rubber for exportation.

### THE RUBBER TREES.

The rubber that yields the gum elastic is of three species, found in the mountains between the rivers Sinu, Atrato, San Jorge, and also in Cordilleras near the San Onofre.

That which grows in 3° and 4° north latitude is said to be the best.

### GATHERING THE RUBBER.

The rubber hunters, before entering the forests, provide themselves with guns, ammunition, flour, salt, etc.

Arrived at a favorable place, a roof of palm leaves is quickly made, and every man starts out with his gun and machete, alone and in a separate direction, hunting for rubber and game.

As soon as one finds a rubber tree he clears a space around it, cutting away all vines, underbrush, etc., and proceeds on in quest of more,

not returning to camp until night. According to immemorial custom, a tree belongs to him who has cleared around it. They continue hunting for rubber in this way until all the trees near are secured. Then begins the work of gathering. A hole is dug in the ground near the grove; the bark of the tree is first hacked with a machete as high as a man can reach, the cuts being made in the form of a  $\vee$  and the milk collected as it exudes, and placed in the hole which has been prepared for it.

After the sap ceases to flow from the punctures made in the trunk, a pile of wood and brush is built at the foot of the tree, and the tree is cut down, the branches keeping one end of the tree clear of the ground and the pile of wood and brush doing the same for the butt.

The rubber hunter then carefully covers the ground beneath the tree with palm branches and large leaves and cuts gashes in the bark throughout its whole length, and the sap is scraped from the tree, and, with what has collected on the leaves underneath, is added to the milk already in the hole.

The sap when it first oozes from the tree is white as milk and about the consistency of cream, but upon exposure to light and air it soon becomes black if not properly watched and cared for.

The quantity of milk placed in one hole depends upon the distance from camp and the trail over which it is carried, as it is transported on the backs of natives.

As soon as the hole contains all the milk the hunter wishes, he coagulates it by adding some substance such as the root of the machocan, lye, hard soap, etc.

These substances cause the rubber to coagulate so quickly that the water, always present in fresh sap, is prevented from escaping, thereby causing the rubber to form a spongy mass, full of watery cells, and causes a great loss in weight when cut and pressed for exportation.

The loss in weight is much less when the milk is allowed to coagulate of itself without the use of any foreign substance.

On an average, about 40 pounds of rubber is obtained from each tree of average size.

After the rubber is properly coagulated it is cut into blocks of 100 to 150 pounds, strapped in bark and transported, on the backs of natives, to the nearest river town, where it is sold to the merchants and traders.

All the capital invested in the collecting of rubber is Colombian and but few are engaged in the trade, as the supply is growing smaller every day as the distance to procure it increases.

This is caused by the wholesale slaughter of this valuable tree.

## EXPORT OF CRUDE RUBBER.

In the last few years the export to United States from the port of Carthagena has been :

Year.	To the United States.	
	Kilos.	Value.
1885.....	65,490	\$50,215.92
1886.....	148,200	178,824.56
1887.....	136,115	156,760.25
1888.....	201,516	206,840.77
1889.....	115,441	100,284.50
Total .....	664,762	692,925.50

To Germany, during the years 1886 to 1889, 21,120 kilograms; to France, during the years 1886 to 1889, 19,760 kilograms; to England, during the years 1886 to 1889, 81,240 kilograms..

This shows a total of 786,882 kilograms of crude rubber and the value is approximated at \$1 per kilogram.

## CULTIVATING EXPERIMENTS.

Experiments have been made by a few enterprising Colombians in cultivating the tree, and there are several plantations upon the River Sinu which contain from ten to twenty thousand trees each, but as the orchards are but a few years old it can not as yet be proved to be a success.

The owners of the plantations are very highly pleased, and that would seem to indicate that the groves are not failures.

The tree germinates quickly and grows rapidly from the seed, and from my own experiments I have raised from the seeds vigorous and healthy plants 2 feet in height in two months, and I have seen a small plantation upon the Rio Sinu, four years old, raised from the seeds, and the trees measured 1 foot in diameter and over 20 feet in height.

I have been told that a tree ten years old will yield at least 20 pounds of rubber a year without retarding its growth.

From information I have received from reliable sources, and from my own personal observations on the upper Rio Sinu, I firmly believe that the rubber tree is susceptible of cultivation and that its culture would in the course of a few years be vastly profitable, requiring but a small outlay of capital to purchase and clear sufficient land for a grove of twenty thousand trees. A grove of that size well attended would amply repay the outlay and expenses with a splendid profit in addition.

The groves, once planted and grown, will last more than a man's lifetime, and the expenses attached will be those only of superintendence and collection.

Labor is very cheap and plentiful. All the necessities of life grow at the door almost spontaneously, and with the daily increasing demand for rubber in its many manufactured forms, and the daily decreasing supply of the crude rubber on account of the destruction of the rubber

forests, the question of cultivation becomes every day a more serious one.

I think it is necessary that some active steps be taken and at once to begin the cultivation on an extended scale and systematically, as in a few years more the supply of wild rubber will be exhausted.

I want to emphasize the facts that there are no climatic conditions in this country to hinder people from finding here a healthy home. Food in variety and plenty is to be had almost for the mere plucking. Game of all sort is in abundance, and the temperature of the country is even and comfortably cool.

I trust that in a short time some definite move will be made by our interested capitalists to cultivate the rubber tree.

C. I. CROFT,  
*Carthagena, Colombia.*

UNITED STATES CONSULATE,  
*Carthagena, December 2, 1890.*

---

#### COLON.

REPORT BY CONSUL SIMS.

#### THE RUBBER TREE.

Caoutchouc or India rubber is a natural product of the whole Isthmus of Panama, the trees growing in the forests to the height of about 40 feet and the diameter of 3 feet, and capable of yielding from 25 to 100 pounds of raw rubber per annum according to the size of the tree.

Rubber here is produced entirely from trees and not from vines.

I can not procure the botanical name for the trees, but know they are of two distinct kinds, though closely resembling each other in appearance, size, and yield. The white rubber is found chiefly on the Atlantic side and the black rubber on the Pacific side of the isthmus; both are considered of equal value. The milk from the white rubber tree hardens more rapidly than that from the black, and the rubber retains the color of the milk, that is, remains white, while the milk from the black rubber tree, although perfectly white when it begins to flow, soon turns black from exposure to the atmosphere. I send samples showing the difference between the two kinds.

Rubber is gathered almost entirely by ignorant natives of mixed breed who continue to bleed the tree daily with fresh cuts until its life is destroyed; or they cut it down and thus more speedily secure all of the milk at once, allowing the milk in either case to flow out on the ground or in holes dug in the ground and harden by evaporation, sometimes assisted by mixing soap and vigorous stirring.

The few more intelligent gatherers bleed the trees once in six months or once a year, and catch the rubber in vessels prepared for the purpose, and thus keep it clean while it is being stirred and hardened.

I find a difference of opinion as to the length of life of the trees that are milked, some maintaining that a large tree will yield 75 pounds of rubber if judiciously tapped once a year, and will, if thus treated, live regular years of the trees, while others, who seem equally intelligent, put the life of the milked tree at only four or five years; the reasonable view seems to be that a tree will annually stand a reasonable milking (as the wounds heal in a few days) without impairing its health any more than it does that of the sugar maple in the United States.

A few thousand dollars have been invested by the Panama Plantation Company in clearing the undergrowth from the forest and planting 20,000 young rubber trees (now less than a year old), and it will cost probably \$2,000 per annum to the company to clear out the undergrowth for six or seven years, until the young trees are large enough to be tapped. I can hear of no other investment of American capital, or any foreign capital either, in gathering or cultivating rubber. All merchants here buy from or barter with the natives for rubber, which brings from 25 to 60 cents per pound according to the care with which it has been gathered and manipulated.

My invoice books show thirty-seven consignments of rubber to United States ports from Colon during the year ending September 30, 1890. These consignments amounted in value in gold to \$13,634.60. I have no means of ascertaining the number of pounds, but at the average price here suppose it was about 35,000 pounds.

I have been unable as yet to get the amount of rubber sent to other foreign countries, but am trying to do so. I think, however, most of the rubber produced here goes to the United States, almost all to New York.

The exports of crude rubber from Bocas del Toro from October 1, 1889, to October 1, 1890, amounted in value to \$1,200, estimated at 3,300 pounds. I have no means of knowing how much was shipped from St. Andreas and San Blas (both within my district), as I hear that exports from both places go direct to the United States; they are nearer the rubber forests than Colon, and I estimate that their exports of rubber fully equal those from Colon and Bocas del Toro, making a total export from the Colon district of say \$30,000 or about 80,000 pounds.

Nearly, if not quite, all of this rubber goes to the United States.

There is no export duty on rubber. The supply of rubber has already greatly decreased, as trees within 30 miles of Colon or Panama have practically been destroyed by means of improper usage; there is still a very large area of rubber forests from 40 to 150 miles distant, but the means of transportation prevents profitable rubber gathering, and these forests may escape until some better means of transportation are provided than native mules and small dugouts (or canoes). I can hear of no experiments in rubber cultivation except on the Panama plantation as before mentioned. This plantation is about 30 miles from Colon and about 15 miles from Panama.

It is not considered doubtful that the rubber trees can be successfully raised and profitably used here. The highest estimate here for cost of clearing and planting an acre of rubber trees is about \$40; add the annual cost of keeping down the undergrowth (which is the only cultivation needed), \$15 per annum for six years, and you will find that the total outlay will be \$130 per acre in seven years, when the tree is ready to be tapped.

The lowest estimates for annual yield after seven years is 25 pounds of rubber per tree for 150 trees, or 3,750 pounds of rubber, worth 50 cents per pound, or \$1,875 per acre. Deduct as a most liberal estimate \$375 for cost of gathering and shipping from any point near the line of the Panama Railroad, and you have \$1,500 per acre as the net annual profit on an investment of \$130; but the popular estimate is that the annual yield would be much greater and that the profit would be \$2,500 per acre.

Land can be had merely for the entering fees and survey, which would be about \$250 for a thousand-acre tract.

#### RUBBER MANUFACTURES.

Rubber is not manufactured in this country.

All merchants here who deal in general merchandise import rubber goods, generally from the United States. It is impossible to state accurately the amount and value of rubber goods imported here, but it is estimated at not over \$5,000 to \$7,000 annually, nearly all from the United States.

No import duties are imposed on any foreign manufactures. Colon has a free port.

American rubber goods are regarded as the best that are imported here, and cheapest.

I have no suggestion to offer to American rubber manufacturers, as they already almost monopolize the market here, which is a very small market since the canal failure.

I inclose a communication from Mr. Walter J. Isaacs, an American citizen and a prominent merchant and banker here, who has for many years paid much attention to the rubber trade; and another from Mr. D. J. Mott, an American also, president of the Panama Plantation Company. Both these gentlemen have given me much aid, and Mr. Isaacs has kindly furnished a small rubber log which will show the method of tapping, and also two small samples, white and black, of rubber in its market condition here. This log and these samples I have sent to the Department by the Pacific mail steamer *Colon*, which sails for New York to-day.

W. E. SIMS,  
*Consul.*

UNITED STATES CONSULATE,  
*Colon, November 5, 1890.*

*Mr. Isaacs to Consul Sims.*

[Inclosure 1.]

SIR: Yours with India rubber circular from Department of State received, and I can assure you it will give me great pleasure to render you all the information that lays in my power.

In reference to the subject I shall state:

(1) A department of Panama, or from the coast of San Blas to the port of Colon on one side, and from a 60-mile distance (Miguel a Bordo) to Colon, abounds with rubber trees, the latter named is noted for its good "black rubber," which, before coming to market, goes through a manufacturing process, *i. e.*, the trees (which attain on an average 30 to 40 feet) are notched with a large knife or machete, in V shapes, so that the point of one V comes over the center of the next, and in this way the milk flows from one notch into another until it reaches the foot of the tree, where a small indentation or hole has been dug to receive same; if left there for three or four months it will coagulate by itself, but to quicken, soap is melted and in that condition mixed with milk in the hole, stirred rapidly until it comes to the consistency of putty; then left to harden, gradually allowing the water, which forms one-third part of the discharge from the tree, to evaporate.

By this manufacturing process it is clearly to be seen that sand or dirt may be mixed in so as to make the bulk heavier. A good tree of this description, which sometimes measures 36 inches in diameter, will produce at one notching or gathering, say 100 pounds of milk, which after being manufactured produces 150 pounds.

(2) The quality of this description of rubber wholly depends upon the amount of dirt it has accumulated during its handling, and amount of water contained; as clean, dry rubber, free from dirt or sand, which has had long enough time for the water to evaporate, is worth at this port 50 cents per pound, when, on the other hand, sand, stones, bark, etc., has been mixed, 60 per cent may be deducted.

(3) The opposite rubber district, from San Blas to this port, produces rubber which is commonly called "white," the tree of which is more or less like the "black," the only real difference between them (besides color) is, that the whole coagulates at once; if a bottle or receptacle of any kind be held under the notch to catch the milk it will harden and take shape; it needs absolutely no other handling or manufacturing process; worth at this port 50 to 60 cents per pound, and calculation must be taken for the great loss by evaporation, as this tree contains the same watery substance to the like amount as the "black;" 25 per cent may be reckoned as the minimum loss from evaporation.

The land upon which these trees grow is open and free, and may be had for cultivation and opening up by simply applying for same in the legal form set down by the laws of the country, without any further cost for land.

(4) The reason for the small quantities obtained is on account of bad or nearly noncommunication with the coast. Natives coming distances of 60 to 150 miles in small canoes (or dugouts), which prove in many cases disastrous to life or complete loss of labor in collecting rubber.

Experiments have been entered into by my knowledge by parties on the Isthmus to plant and cultivate the rubber plant which has met with fair results.

Thousands of miles of land are to be had full of these trees, already in prime and abundant in milk, simply for the asking and opening up of communication.

There is no duty or export of this article from this department, nor any expectations of same being levied; nor, sorry am I to say, no law to prevent the cutting down of trees for the quicker method of abstracting the milk.

In conclusion, the majority of manufactured rubber goods are imported from the United States of America in the shape of boots, shoes, coats, hats, tubing or hose, medical, stationery, and mechanical appliances to the amount of (from 1880 to 1885) \$250,000, from that date, about \$5,000 per annum.

There are no duties on the imports of the Isthmus.



Our American rubber goods in the line of stationery, mechanical, and medical appliances are considered of a superior grade compared with other countries.

Respectfully, yours,

WALTER L. ISAACS.

COLON, REPUBLIC OF COLOMBIA.

I send by bearer samples of the white and black rubber, also a piece of the body of the tree, 7 feet high, 9 inches in diameter, which, by tapping, you may easily see contains milk, although it has been cut some two weeks back.

I would judge this tree to be about 12 years old.

WALTER L. ISAACS.

Col. W. E. SIMS,

*United States Consul at Colon.*

---

*Mr. Mott to Consul Sims.*

[Inclosure 2.]

COLON, October 24, 1890.

DEAR SIR: In reply to your request for information concerning rubber, I can only deal with that portion of your circular which relates to the rubber in its wild or natural state, method of gathering, and the cultivation of the tree itself. Below are the answers to your questions in their regular order:

First. Caoutchouc, or India rubber, is a native production of Central and some parts of South America, the State of Panama, in particular, being considered to possess more than the other States of Central America and South America both the soil and climate necessary for its successful cultivation.

Second. It is yielded by trees.

Third. The milk is drawn from the tree in pretty much the same manner as the sap is taken from the maple in northern districts, different gatherers having different methods of cutting the notches, but the principle is to make the incision so that the milk or sap will flow free and easy into a vessel set to catch it. It is carried in the same vessel to the camp where it is put through a simple process which solidifies it, and by the same operation gives it any form or shape required. The morning is generally considered the best time to bleed the trees.

Fourth. Yes; though only a small amount.

Seventh. There is no fear of any failure from the yield of the rubber tree, but there is of the decrease of the natural supply from the destruction of the tree by improper bleeding, the laws of these countries giving the right of cutting the trees to those who may find them in the forests, without imposing any restrictions as to method, or as to quantity of milk to be drawn at one bleeding. The consequence is, that when a tree is found it is bled for all it is worth; all the milk it contains is taken out, which naturally results in killing the tree. A good healthy tree will last about four years with judicious bleeding, its length of life altogether depending upon the frequency of the bleeding and the quantity of the milk taken at one time. The trees can be bled every six months, but yearly bleeding gives better results.

Eighth and ninth. Very few experiments have been made in cultivating the rubber tree in Central America; none in this district that is known of outside of the Panama Plantation Company (O. B. Shaffer, secretary and treasurer). It is only lately, since the destruction of the rubber forests have told upon the market, that its cultivation has attracted attention. So far the efforts of the company have been very successful. About ten months ago they planted in the neighborhood of 20,000 rubber trees from six to eight months old. Very few, not exceeding 5 per cent, were lost in transplanting, the balance taking good root and shooting up very rapidly, all having to-day a strong, healthy appearance with every prospect of doing well.

Tenth. It is certainly our opinion that the rubber tree is susceptible of successful cultivation. When found in the forests its yield is the most profitable production of the country, and there is every reason for believing it will be more profitable under cultivation.

Yours truly,

Col. W. D. SIMS,  
*United States Consul, Colon.*

D. G. MOTT,  
*President Panama Plantation Company.*

---

## PANAMA.

REPORT BY CONSUL-GENERAL ADAMSON.

### THE RUBBER TREE.

The India rubber tree is indigenous to all parts of the Isthmus of Panama, but is found in the greatest abundance in the district of Darien, south and west of the Gulf of San Miguel, say between latitude  $7^{\circ} 30'$  and latitude  $9^{\circ}$  north, within 200 miles of the city of Panama, but very much further if estimated by the difficulty of reaching it.

The India rubber of this district is obtained entirely from trees. I have not found any man here who could mention the botanical names of these trees. The tree known here under the general name of "caucho," and which produces the darker variety of Panama rubber, supplies the chief part of the total product. Besides the ordinary caucho there is the "caucho forube," which gives a light-colored article known as "virgin rubber." A third variety is called "caucho macho" or male rubber, because it gives very little milk and that useless, as it will not coagulate.

As crude rubber is chiefly gathered by the lowest class of negroes, who live on the extreme verge of civilization, or by Indians of the forest where civilized men may not enter, the processes employed are very crude and ruinous. Those who have lived in the rubber districts tell me that the milk is never gathered by tapping the trees. When a caucho tree is found a hole or trench is dug near to it, the tree is then cut down and the milk or sap run into the hole, where it is coagulated by stirring in it either common soap, wood ashes, alum, or the leaves of a vine known here as "batatilla." When coagulated the slabs are bought by the dealers, who have them cut into strips and pressed by machinery. The mode of drying and hardening, as practiced in Brazil, by smoking over a fire is not used here.

There is no American capital employed in the business in this department, so far as I can discover. The traders, however, who buy up the rubber almost invariably consign it to commission merchants in New York.

The public records contain no statistics showing exports of rubber of a date further back than May, 1889, and they do not state the countries

to which shipped. Through the politeness of the prefect of Panama I learn that the total exports of crude rubber from Panama during the year ended June 30, 1890, were 196,528 pounds. As the invoices verified at this consulate-general show that during the same period the shipments from Panama to the United States amounted to 195,362 pounds, it follows that only 1,166 pounds were sent to all other countries. In other words, the United States bought 99 per cent of the total amount of rubber sent abroad from the consular district of Panama.

The shipments from Colon, the Atlantic port of this department, it is supposed will appear in the report of the consul for that port.

The exports of crude rubber from the consular district of Panama to the United States during the last six financial years (July 1 to June 30) were as follows:

Year.	Quantities.	Invoiced value in United States gold.	Year.	Quantities.	Invoiced value in United States gold.
	<i>Pounds.</i>			<i>Pounds.</i>	
1884-'85.....	170,015	\$83,733.65	1887-'88.....	191,533	\$53,351.03
1885-'86.....	134,313	52,027.29	1888-'89.....	100,161	39,742.09
1886-'87.....	192,261	83,748.03	1889-'90.....	195,362	88,029.08

There is no export duty levied on rubber shipped from this isthmus.

The eventual failure of the rubber supply on this Isthmus is a matter of serious concern to those who deal in this valuable article. The terribly destructive method practiced here of cutting down the tree is, in another form, a repetition of the old story of killing the goose that laid the golden eggs.

Every year the rubber gatherers have to penetrate further and further into the dense forests to find the caucho tree, and without advance in price this industry will soon cease to be remunerative. The Government has never taken any steps to arrest the wholesale destruction of the trees and, in fact, it would hardly be possible to do so. No government in the world could, reasonably, be expected to make its authority felt in the depths of such forests as those of the Darien.

Hitherto, no attention whatever has been given to the cultivation of the rubber tree for commercial purposes within this department. The fact that the India-rubber tree grows wild in this country warrants the belief that its cultivation would be profitable if undertaken with sufficient capital and intrusted to proper hands.

#### MANUFACTURES.

There is no manufactory of India-rubber goods either on the isthmus of Panama or in any other part of the Republic of Colombia. As duties have not been levied for many years at the ports of this isthmus, there are no statistics showing the amount of importations of rubber goods.

The consumption of manufactures of rubber is, however, a very small item. The duties collected at the duty ports will, no doubt, be reported by the consuls at Carthagena and Barranquilla. American rubber goods are considered superior to those of European manufacture. American manufacturers of rubber goods, who wish to extend their trade here, should send their agents here to consult with dealers as to the demands of their customers in regard to the particular articles needed and the changes required to be made in weight, shape, and general style of goods.

THOMAS ADAMSON,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Panama, November 18, 1890.*

### PERUVIAN RUBBER FORESTS.

REPORT BY CONSUL KERBEY, OF PARA, BRAZIL.

The Peruvian rubber or cautchó forests are already fast disappearing, and the nearest are now far away. The practice of felling the tree to collect the rubber has destroyed all the trees near the rivers, except far up on the Ucayali and Javary rivers. It is affirmed that extensive tracts of forest have not yet been touched, but that they are difficult of access on account of the distance from the rivers and the lack of roads. It is perfectly safe to assert that in the near future all the available cautchó forests of Peru will have disappeared unless other methods are speedily adopted.

### PERUVIAN RUBBER.

The rubber which comes from Peru, as well as that which comes from Bolivia, pays no duty in Brazil. In Peru it pays an export duty of 7 cents a kilo for first-class rubber, and 5 cents a kilo for inferior qualities. When it reaches Peru, of course it has to be transshipped for exportation. It can not be taken to a private warehouse without being classed as Brazilian rubber, and consequently paying duty. The usual procedure is as follows:

When the river steamer arrives with Peruvian rubber the consignees petition the custom-house authorities for permission to land the rubber and place it in the entrepot. It is taken to a special department of the custom-house, and there weighed and boxed. From there it goes to the ocean steamer under the eye of the official; but no charge is collected, as it is foreign produce in transit. If the consignees choose, they may transship directly from the river steamer to the ocean steamer without landing, and with the attendance of the Government official.

If this Peruvian rubber is sold in Para, the price paid is always the Para market price plus the amount of the Brazilian rubber duties, which it does not have to pay, and which is about 21 per cent *ad valorem*.

## EXPORT DUTIES.

All rubber actually produced in the State of Para, and that which has not paid duty elsewhere, when exported from this port, pays a State export duty of 12 per cent ad valorem, a national export duty of 9 per cent, and 12 reis per kilo municipal tax.

Rubber produced in the State of Amazonas and exported from Para pays in Manaus or Itacoatiara a State export duty of 9 per cent to the State of Amazonas, and a municipal tax to the city of Manaus of 2 per cent ad valorem plus 15 reis per kilo. For fuller statistics with regard to the public revenue derived from rubber attention is called to the statistical statements that are soon to follow this partial report, and for which the necessary data are being gathered from official sources.

J. O. KERBEY,

*Consul.*

UNITED STATES CONSULATE,

*Para, November 20, 1890.*

# CONTINENT OF ASIA.

## BRITISH POSSESSIONS.

### INDIA.

REPORT BY CONSUL-GENERAL MERRITT, OF CALCUTTA.

#### THE RUBBER PLANTS OF INDIA.

*Caoutchouc*.—Caoutchouc, or India rubber, is the thickened milky sap obtained from at least six genera of plants belonging to three widely different natural orders, *Landolphia* and *Willoughbeia*, to *Apocynaceæ*; *Castilloa* and *Ficus*, to *Urticaceæ*; *Hevea* and *Manihot*, to *Euphorbiaceæ*. When the bark of plants containing this substance is cut, the milk exudes and in time hardens on exposure to the air. In the plant tissue caoutchouc is found to circulate in certain vein-like vessels distributed throughout the middle, or more rarely the inner layer of bark. It is highly elastic, lighter than water, has neither taste nor smell; and that derived from the *Ficus elastica*, the principal rubber-producing tree of India, consists of 87.2 parts of carbon and 12.8 of hydrogen.

*Rubber plants of India*.—There is a great variety of caoutchouc-yielding plants indigenous to India, and both time and money have been spent in experimenting with worthless milky shrubs and climbers. Much has been written advocating the cultivation of rubber-producing vines, yet no lasting interest has been created in these troublesome creepers, and little has been done in the way of procuring caoutchouc from them either in a wild or a cultivated state. Experiments have been made in many parts of this country with exotic plants. Grossly exaggerated statements were given out at first in regard to the facility of production and resulting profits, causing for a short time great activity, followed, however, by widespread disappointment. People who never think of a permanent home in a country can not be expected to make investments on which they must wait fifty years for a realization. The effort to profitably introduce foreign rubber plants in northern India has been a complete failure, and the product from the private plantations of the south is not likely to have any appreciable effect on exports for many years.

The present report, therefore, will be confined to indigenous plants, and as but little rubber is derived from southern India, and that prin-

cially from neglected vines, and as the article of, Indian commerce is procured from northern India, and almost exclusively from the *Ficus elastica*, a few lines containing information acquired by conversation with intelligent, practical men in regard to this tree ought to be worth pages of suppositions obtained from contradictory authors about plants that up to this time have proved of little value.

#### THE *FICUS ELASTICA*.

*Habitat*.—The *Ficus elastica* is found in the damp forests at the base of the Sikkim Himalaya, in Assam, Chittagong, and Burma, and probably eastward in the unexplored region beyond. It is a large evergreen tree, usually epiphytic in its young stage, but finally or originally rooting in the ground, and sending down banyan-like aerial stems to take hold and find nourishment in the soil. It requires an exceedingly damp atmosphere to do well, and therefore thrives best at the foot of the mountains or on the mountains themselves up to an elevation of 2,000 feet. Among forest trees it is easily first, for no other approaches it in dimension and grandeur.

*Growth*.—The seed germinating often on the summit of a lofty tree, whither it has been carried by a bird, sends down its far-reaching roots, and from the top of these grow horizontal branches and a dark-green dome of leafy boughs. In time, the fostering stem having been overshadowed and destroyed, a hundred pillar-like trunks hold possession.

*Rubber gathering*.—The trees when not under the immediate supervision of the forest conservators are tapped in the most careless manner. In the lower portions and in the long aerial roots diagonal cuts penetrating to the wood are made from 6 to 18 inches long, and in an elliptical form, so as to be about 3 inches across the center, and the sap allowed to run into funnel shaped leaves or holes in the ground. It is only necessary to see the tree to appreciate the fearful risk encountered by the gum gatherers, who by no means confine their operations to the base, but climb as high as the roots extend, and higher still along the horizontal branches, chopping with their dhaws at intervals of every few inches, making at the same time a foothold and a place from which the sap exudes. There must be two ascents, the first to tap the tree, and the second, a day or two after, to collect the gum that has formed. The tears which gather below the wounds, when pulled off, bring with them all the exuded gum and form when moulded together a sticky ball.

*Destructive gathering*.—The quantity collected at one cutting seldom exceeds 8 to 10 pounds. Of course winter and spring are the only seasons in which the gathering is practicable, for the summer rains would wash away the tears before they had time to solidify. It is stated, however, that the sap flows most freely during the rainy season. This damaging way of tapping soon makes itself apparent in large cankers and rotted off buttresses. The wonderfully deep green foliage loses

its luxuriance, and dead roots and blasted branches testify to the fearful wrongs inflicted on the tree. However, it is when the wild tribes, with the customary improvidence of savages, attack the valuable rubber forests, cutting and slashing in the most outrageous manner, that the wholesale destruction begins. They slash all parts of the trees within reach, often felling them so as to render the operation of tapping more convenient. Scarcely anything can be more disheartening than the sight of hundreds of magnificent trees lying bleeding on the ground, their roots, trunks, and topmost branches covered with sickening gashes. Not infrequently these roving vandals set fire to forests, so that tender shrubs may spring up on which their flocks may feed. More often, along the banks of rivers and their swollen tributaries, they cut away the timber, so valuable while living, and float it down to be sold for the commonest of purposes.

*Preservation.*—It is a pleasure however to be able to say that the statement one frequently meets, that no effort is being made for the preservation of rubber trees is incorrect. Nothing is more interesting to observe than the untiring efforts of the British Government for the conservation of the forests and for the care of *Ficus elastica* plantations.

The immediate effect of the extension of English rule of course is the widespread devastation of forests, since the people just beyond the limit of restraint collect for the new market the caoutchouc in their destructive way; but once under the will of the new ruler their wasteful natures are curbed, and their ruinous practices to a great extent stopped. The protection of areas with naturally grown rubber trees on them is exceedingly difficult, on account of the well-nigh inaccessible localities where these trees grow, and because of the unequal way in which they are scattered over vast regions. Rubber is so very portable, its removal not being confined to roads or rivers, as with timber, that depredations on the forest preserves are of frequent occurrence. Vigilance never ceases, however, and new districts are constantly added to be watched over by the officials of the forest department.

In the single province of Bengal 11,468 square miles are under the control of these officers. One district in Assam, 8 by 30 miles, is said to contain 43,000 rubber trees, many of them more than 100 feet high.

*Legitimate gathering.*—The legitimate collection of rubber in the timber reserves is conducted under rigid restrictions. Fresh cuts are made only in February, March, and April, and the trees are allowed to rest for two years between each tapping. The cuts begin about 4 feet from the ground on the main stem alone, and are not less than 2 feet apart, and penetrate the bark only.

A European house adopted the plan of running the milk into wooden bins 6 feet square, partially filled with water, on which the rubber floats after a time. While the caoutchouc is still a liquid it is removed and boiled over a slow fire in iron pans 4 by 6 feet and 2 feet deep; two parts of water are added, and the whole is stirred constantly. When



coagulated the rubber is removed with iron forks, pressed, again boiled and pressed, sun dried, and washed over with lime.

*Quality of rubber.*—The rubber brought in from the region bordering on China is wretched-looking stuff, consisting of chunks resembling dark tufa or balls, 30 per cent of which is sand, bark, and clay. Many of the dirty stringy globes the natives have to sell remind one of a ball made by a thrifty mother of different sizes of twine that has been played with in the muddy streets by her scampish sons. These unscrupulous collectors always conceal a lump of mud in the center of the glutinous mass, imagining since it is sold nominally by weight, that their cheating has not been foreknown and provided for. The jungle people also mix with the produce of the *Ficus elastica* rubbers derived from two large creepers, the botanical names of which are *Chonemorpha macrophylla* and *Rhynecodia walichii*.

*Planting the Ficus.*—Recently the authorities have been spending large amounts of money and wisely directed effort in planting and raising the *Ficus elastica*. The British Government has come with the purpose of staying, and it can afford to wait for the large returns that are certain to be derived from its investments in plantations and forest reservations. It is a difficult thing to arrive at the truth in an investigation in regard to future productions, for those who know most differ widely in their judgment. Dr. George King, the superintendent of the Royal Botanic Garden, tells me that he "expects a decided increase in the rubber product within a reasonable period as the effect of the protection of rubber trees within British territory," while Mr. Gustav Mann, conservator of forests, informs me "that there is sure to be a decrease of the natural supply from this country." No practical scientists stand higher than these two gentlemen.

Be the results of forest protection and forest destruction what they may, the Government is using great precaution against the absolute ruin of the rubber industry, by starting *Ficus elastica* plantations in different parts of the country.

#### PLANTING AND CULTIVATING THE FIGUS.

*Sowing the Ficus seed.*—The seed of this tree ripens from January to March, when it is collected as it falls, and dried in the sun. It is, properly speaking, the fruit, and consists of small figs the size of a pea. These, at the time of sowing, are broken between the hands, and the seed thus mixed with the particles of fruit is sown without any attempt to clean or separate the seed. About 75 seed are in one fig. Germination takes places sometimes only three months after the seed has been sown, and as it is very small, it is scattered on the surface of the soil only. It requires as much light as possible from above; side shade is an advantage. The seed is sown on beds, or in boxes or flowerpots, and it is most essential that the drainage of the soil be perfect and that the earth never becomes soaking wet; whilst on the other hand it is never allowed to become thoroughly dry, but is kept always moist.

*Transplanting.*—As the seedlings are very small at first, they are treated with great care, and drip from trees above the seed bed is guarded against. The soil is kept loose and open. Vegetable mold is the best soil. When seedlings are 2 to 3 inches high, they have formed already a little thickened root, something like a small carrot, and are then transplanted very safely. This is done on a properly dug nursery bed, well drained, and the seedlings are placed about 1 foot apart, in lines also a foot from each other. After the seedlings have become 1 to 2 feet in height, they are very hardy, and can be transplanted at any time of the year; but to protect them from the deer, who are extremely fond of the leaves, and to avoid the great expense of fencing in a plantation, it is deemed advisable to transplant the young trees a second time in nurseries, giving them more room, say 3 to 4 feet square to each plant, and to let them grow until 10 to 12 feet high, when they can be put out into the plantation without fear that the deer will destroy them. They require, however, a strong stake each, as the deer will bend the young trees down with their horns if not staked.

Seedlings of *Ficus elastica* planted in the forks of trees in the forest are very difficult to attend to, and they in consequence often become dry about their roots, which retards their growth if it does not kill them. For these reasons rubber trees planted on the ground grow much better in Assam plantations, and the latter mode of planting has therefore been adopted almost exclusively. They are not planted, however, on the ground in the common way, but on small mounds 3 to 4 feet high of earth, and the cut wood and rubbish close at hand, which suits the epiphytal habit of growth of this tree.

*Cuttings.*—This rubber tree can also readily be propagated from cuttings, if only perfectly ripe young branches or shoots are used, but young trees so raised are not so hardy as the seedlings, and do not make equally good growth in the first five to ten years.

*Situation.*—To insure the greatest possible amount of moisture in the atmosphere, the plantations of *Ficus elastica* in Assam have been made in the moist evergreen forests, near the foot of the hills, through which lines 40 feet in width were cleared 100 feet apart from center to center of the lines, thus leaving 60 feet of forest standing between the lines. On these cleared lines the mounds for the planting of seedlings or saplings are thrown up at a distance of 25 feet apart. Care has to be taken afterwards to prevent the forest trees left standing closing in above, over the lines and the rubber trees planted on them, which they have always a tendency to do, and which, if not guarded against, is very detrimental to the growth of the young rubber trees. This is easily effected by lopping the branches of the forest trees left standing. The undergrowth which springs up on these lines and as a rule grows most vigorously, has also to be cleared two or three times in the year for the first four or five years to admit air for the young rubber trees; but beyond this, and the putting occasionally some more earth on to the mounds on which the trees were planted, nothing is necessary. The

lines for planting are cut in an east and west direction, so as to protect the young rubber trees against the strong sun in the middle of the day; the atmosphere also keeps moister in this case than if the lines were cut south and north. High ground is always best, and swampy ground where water lodges is avoided; but the tree grows very well on alluvial flats, on the banks of rivers, even though the land be inundated for a few days once or twice in the year.

*Durrany plantation.*—The only successful plantation of any size in India is in the Durrany district of the province of Assam. Its area is now 1,538 acres and the trees are growing luxuriantly. Since it is not thought to be wise to tap the trees before they are twenty-five years old, no estimate can as yet be made as to what the product will be. As it is said that an amount varying from 40 to 80 pounds of rubber has been taken from a forest tree yearly without injury, there is an opportunity for everyone to make his own calculation as to the outcome of the governmental experiments.

*The natural supply.*—When men who know most in regard to the rubber business are asked whether they fear a decrease of the natural supply of rubber, the reply is almost always in the affirmative; but they are careful to add the lack of knowledge, which, perhaps, is unattainable, and the rapid increase of manufactories are the causes of the commercial fright.

It was my pleasure to have a long conversation with Maj. J. A. Betts, who to scientific acquirements has added that practical knowledge that comes to a business man with opportunities of travel; while an officer in the Chinese army he explored the large islands of Formosa and Hainan, and found the forests filled with untouched *Ficus elastica*.

It is natural to reason that in all the semiexplored regions from Burmah to the Pacific these trees are to be found, and that with the subjugation of the wild tribes an amount of rubber will come from India and the country eastward, to supplement that derived from South America and Africa, sufficient to supply the world's demand.

## CAOUTCHOUC EXPORTS.

Raw caoutchouc exported for the years ending March 31:	Cwt.
1885-'86 .....	6,553
1886-'87 .....	7,598
1887-'88 .....	9,228
1888-'89 .....	8,673
1889-'90 .....	9,934
For the nine months ended December 31, 1890 .....	6,719
Raw caoutchouc exported for the year ending March 31, 1890:	
To United Kingdom .....	5,840
To Holland .....	15
To Egypt .....	1,938
To United States .....	2,110
To Straits Settlement .....	24
To other countries .....	7
Total .....	<u>9,934</u>

	Cwt.
From Bengal.....	4,511
From Burmah.....	5,423
Total.....	9,934

Raw caoutchouc exported to United States for the years ending March 31,  
1886-1890.

1885-'86.....	2,642
1886-'87.....	1,128
1887-'88.....	1,902
1888-'89.....	1,670
1889-'90.....	2,110

### RUBBER IMPORTS.

*Manufactured articles imported up to March 31, 1890.*

Whence.	Value.	Into.	Value.
	<i>Rupees.</i>		<i>Rupees.</i>
United Kingdom.....	226,088	Bengal.....	45,966
Austria.....	5,241	Bombay.....	177,811
Germany.....	7,389	Sindh.....	9,008
Aden.....	4,563	Madras.....	5,592
Other countries.....	1,098	Burmah.....	6,022
	244,399		244,399

For the nine months ended December 31, 1890, 173,429 rupees.

### MANUFACTURES.

There are no manufactories of rubber goods in India, and no American capital is employed either for rubber gathering or rubber trading in this country.

What few articles made in the United States are sold here come through England. The only things to be found that have been imported direct are the washers for rubber skates.

No rubber shoes are worn and very little clothing is sold except the poorest quality.

There is no export or import duty on either crude or manufactured rubber.

No American rubber manufacturer, desirous of extending his trade into India, ought to make any attempt unless he has abundance of capital and unless willing first to make a personal survey of the field.

SAMUEL MERRILL,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Calcutta, February 4, 1890.*

## EXPERIMENTS IN BURMAH.

REPORT BY CONSUL-GENERAL MERRILL, OF CALCUTTA.

Since forwarding my report last week Maj. C. T. Bingham, the conservator of forests in the Tenasserim Circle, Moulmein, has written me quite fully in regard to experiments made near Mergui, in Burmah, in introducing *Hevea braziliensis*, confirming some statements already in my possession but not used. It is quite possible that a selection from his communication, somewhat condensed, of whatever information has not been sent forward, may be of value.

In 1879 a large number of *Hevea* plants were set out on low ground in the plantation near Mergui. Only fifty survived the attacks of white ants and other enemies. The ten largest of these, 2 feet from the ground, measure in girth from 2 to 4 feet. The older trees having begun to bear seed, experiments were made, resulting so successfully that in 1887 there were on hand small and large 14,841 plants. The fifty older trees appear to be in perfect health, with evidence of such vigor as to leave no doubt that they are fully established and that the propagation and acclimatization of the *Hevea braziliensis* has been successfully demonstrated.

A tapping experiment was undertaken in 1888, during the month of July, under the impression that the flow of milk would be more abundant during the rainy season. Small bamboo pots were affixed to the tree by sharpening the upper ends and forcing them into the bark. The incisions were made in an upward direction and converging to the receptacle.

It was observed that the exudation of milk was greatest near the ground where the bark was thickest, while at a height of 6 or 7 feet it was almost nothing. Owing to continued wet weather it was found necessary to dry the milk over a fire and keep it subsequently in a warm place near the fire for about three weeks. The experiment was renewed between the 22d and 26th of November, when the rains had fully ceased, 42 trees being operated on, 5 to the west and 37 to the east of a small stream. Samples of this *Hevea* rubber were sent to the secretary of state, and replies were received from the Kew authorities and from the India-rubber works company.

LONDON, July 4, 1889.

*From secretary of state for India to Government of India.*

With reference to your letter No. 4 (forests), dated the 26th March last, the samples of caoutchouc obtained from *Hevea braziliensis* trees near Mergui, in Tenasserim, therein referred to, were duly forwarded to the director of the Royal Gardens, Kew, who transmitted them to the India Rubber, Gutta-Percha and Telegraph Works Company (Limited) for valuation and report.

It will be seen by the inclosed copy of a letter from Kew that Mr. Thiselton Dyer considers the results shown by the examination of the specimens very encouraging, and that experiments in tapping the trees of *Hevea braziliensis* should, if possible, be continued.

The prepared samples alluded to are forwarded separately per parcels post.

ROYAL GARDENS, KEW., June 4, 1889.

*From D. Morris, esq., to J. A. Godley, esq., C. B., under secretary of state.*

I am desired by Mr. Thistelton Dyer to acknowledge the receipt of your letter of the 26th April last (R. S. and C. 614), forwarding a copy of a letter received from the Government of India, with inclosures, reporting the results obtained from tapping the trees of *Hevea braziliensis* near Mergui, in Tenasserim.

The specimens of caoutchouc referred to were duly received by parcels post, and they were subsequently submitted for valuation and report, through S. W. Silver, esq., F. L. S., to the India Rubber, Gutta-Percha and Telegraph Works Company (Limited), at Silvertown.

I inclose herewith a description of the specimens, and a copy of the valuation and report received respecting them. On the whole this report is favorable. The small quantity of rubber available (in no case exceeding a few ounces in weight) rendered its manipulation somewhat difficult, but bearing this fact in mind the result, as shown in the sample of prepared rubber sent in a separate cover, is very encouraging.

It will be noticed that the best quality, valued at 2s. 3d. per pound, is nearly equal to the best South American rubber. This was labeled "Sernamby," and was formed by milk, which coagulated immediately on the trees in the dry season.

The rubber (marked No. 3) obtained from trees during the rainy season was dried over a fire. The quality of this appears to be better than either No. 1 or 2, and it approaches very near to No. 4. Except as regards the difficulty of coagulating the rubber, there appears from these experiments to be little difference between the specimens collected during the rainy season and those collected when the rains had fully ceased.

All the trees tapped were young, and few were more than 12 inches in diameter. Mr. Thistelton Dyer is of opinion that it is very desirable these interesting experiments should be continued if there are sufficient trees available. If during the dry season the milk is found to coagulate readily on the trees this method might be provisionally adopted with the view of testing on a larger scale its suitability for general use in India. Where, however, the milk does not coagulate readily, it might be advisable to try the cautious application of dry heat in the most convenient manner locally available. Mere sun heat, especially during the rainy season, does not appear to produce good rubber.

[Copy of label attached to each specimen of *Hevea* rubber.]

#### HEVEA RUBBER.

No. 1. Part of yield of 37 trees (*Hevea*) on the east of small stream running through the Mergin plantation; collected 23d to 26th November, 1888.

(The weight of this sample was stated to be 9 ounces, but the actual weight was 18 ounces. Half of the sample was kept for Kew Museum and the remainder sent for valuation and report.)

No. 2. Yield of 5 trees (*Hevea*) on the west of the small stream running through the Mergin plantation.

(Actual weight of this sample was 8 ounces, but it was marked 3 ounces.)

No. 3. *Hevea* rubber, first tapping (weight 5 ounces).

No. 4. Sernamby.

(No weight marked on sample, but it was found to weigh about 6 ounces.)

[Report from India-Rubber, Gutta-Percha and Telegraph Works Company (Limited), dated Silvertown, May 30, 1890.]

The four samples of "Hevea" rubber received from Kow have been treated with sulphur in the same way as that adopted in the case of the better kinds of Brazilian rubber.

Allowance must be made for the smallness of the quantity experimented upon.

Eight samples sent herewith, 4 each "washed" and "cured."

No. 1. Has the appearance of that imported some twelve months since, and known as Rio rubber; is soft, and would decompose if exposed to the necessary heat after washing, losing 12 per cent in that process; its commercial value, say 1s. 11d. to 2s.

No. 2. Slightly firmer; in other respects the same as No. 1.

No. 3. Percentage of loss somewhat less, and therefore of a trifling increased value.

No. 4. Is found to be stronger and firmer; not so likely to decompose when drying; worth 2s. 3d. Owing to the scrappy nature the loss is greater than it otherwise would be.

Maj. Bingham closes his interesting letter with the following statements:

I have not heard of any fears being entertained as to the failure of the rubber supply.

I think it is generally allowed that the cultivation of *Hevea brasiliensis*, at any rate in Burmah, could be made a profitable business.

One would conclude from the communications received at this consulate in response to inquiries that the only thing necessary to inspire the Government to make special efforts for the increased production of caoutchouc with large attending profits is that an effort be made in some foreign country to control the market and advance prices.

SAMUEL MERRILL,  
Consul-General.

UNITED STATES CONSULATE-GENERAL,  
Calcutta, February 10, 1891.

*Ceylon.*—The India rubber (caoutchouc) tree is only grown here experimentally, and no appreciable quantity of the product has ever been obtained locally.—(W. Morey, consul, Colombo, November 7, 1890.)

## STRAITS SETTLEMENTS.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

### CRUDE RUBBER.

In your India Rubber "Circular" of September 20, 1890, you confine your inquiries to one branch or division of the rubber industry, viz, caoutchouc, or India rubber. As the export and growth of India rubber in this consular district is small in comparison to the growth and exportation of gutta-percha, and as it belongs to the same botanical family and is used for some of the same purposes, I will include a brief report of it in this dispatch.

Caoutchouc does not appear to have been known as a product of Asia until 1798, when a plant afterwards named *Urceola Elastica* was discovered to yield it, by Mr. J. Howison, a surgeon of Penang (this consular district); since then, however, a large number of other plants have been found to yield it, chief of which are the *Willughbeias*.

The only section of this consular district in which India rubber is gathered and raised in any quantities is North Borneo (British), but just how much I have no way of ascertaining.

The Singapore table of imports for the quarter ending September 30, 1890, will give some idea of the India-rubber trade:

Imported from—	Piculs.	Value.
British North Borneo .....	4	\$520
Java .....	2	110
Labuan .....	40	2,700
Other Dutch Islands .....	41	2,790
Sarawak .....	137	7,140
Selangor .....	2	100
Sumatra .....	8	700
Total .....	234	14,060

*Borneo rubber (white in color).*

	Piculs.	Value.
Dutch Islands .....	246	\$14,460
Sarawak .....	211	9,360
Sumatra .....	4	360
Total .....	461	24,180

There is a royalty charged on rubber collected from the jungles of Borneo of 10 per cent ad valorem.

The different species of the plant found in the district are—

(1) "Manungan pulan," which comes chiefly from Northwest Borneo; it is a *Willughbeia Burbidgei*, and is specifically identical with the "Gutta-singgarip" of the Peninsula.

(2) "Maugan buyok," said to yield the best gutta of the Bornean forest; it is a *Leuconotis engenifolius*; this species is also found in small quantities on the peninsula.

(3) "Manungan manga," which yields very good gutta, is possibly a *Willughbeia*, as also probably is "Surapit," for the latter yields the same milky exudation as "Manungan pulan," but is said to be a bad gutta and seldom collected.

"Bertabu," or Petabo pulan, is referred to as of little value as gutta except, perhaps, for adulterating the better kinds. The other kinds of gutta met with in the Malay Peninsula are—

(1) Singgarip putch, or gutta sudek (*Parameria glandulifera*).

(2) Singgarip hitam (*Willughbeia Martabonica*).

(3) Gutta jelutong (*drya costulata*); this is only used for adulterating.



The amount of India rubber exported to the United States direct (that is, through this consulate) during the years 1880 to 1889, inclusive, is as follows: 1880, 101 piculs; 1881, 146 piculs; 1882, 101 piculs; 1883, 28 piculs; 1885, 25 piculs. Value of a picul varying from \$50 to \$130.

During the same period of years the largest shipment to the United Kingdom for any one year was 1883, 581 piculs; and the largest shipment to the continent of Europe during the same time was also in 1883, which was 586 piculs. The total amount of India rubber imported into the Straits in 1888, from all sources, was 13,227 piculs, valued at \$697,298. Exports 13,715 piculs, valued at \$547,786.

Experiments have been made in the cultivation of the rubber tree in Java, and it is now believed by such authority as I have that rubber is susceptible of cultivation, although I have no data on the subject. There is no export or import duty on rubber from this port, nor are there manufactories of rubber in this district. There are no imports of rubber goods from the United States, and no American capital invested here in its production.

#### GUTTA-PERCHA.

The gutta-percha production and export is much larger than the rubber (proper) trade, and I think may be considered in connection with this subject. The name is given to the inspissated juice, which is produced chiefly by *Dichopsis gutta*, called by the natives getah taban merah, and often confused with caoutchouc. The tree is of large size, from 4 to 5 feet in diameter, and from 100 to 200 feet in height. When growing in the forest it has a clean straight stem, and it may be generally distinguished by the rich brown color of the under surface of the leaves. Flowers small, white, and divided into six petals and six sepals. The seeds, generally two in each fruit, are oily, and are eaten by birds and monkeys. It flowers in March, and the fruit ripens in June.

The method of collecting the gutta is as follows: A tree having been selected is felled, and as it lies on the ground V-shaped rings, about 1 inch broad, are cut in the bark at intervals all along the whole length of the trunk and of the branches with a parang (Malay knife). These cuts soon become filled with the white cream-like sap, and in about half an hour the gutta will have separated from the aqueous portion of the sap and may be removed by rolling a small ball of it round in the cuts, to the edge of which the coagulated gum adheres and forms a disk, varying in size according to the number of scores it is rolled in.

These disks are then boiled in water and made into balls and sold by the collectors to the parties who export it to Singapore and Penang. The gutta is at first white, but soon changes to pink, and finally to a brownish red. The amount yielded by a single tree, about 100 feet high, and whose age was estimated to be over one hundred years, was 2 pounds 5 ounces of fairly clean gutta, valued by a Malay dealer at 3s. 3d. per pound. So that the product of such a tree is worth only 7s. 6d.

Other species of the gutta tree in the settlements are:

- (1) Getah toban putch (white), *Dichopsis polyantha*.
- (2) Getah toban sutra (silk), *Dichopsis sp.*
- (3) Getah toban chayas (liquid), *Dichopsis sp.*
- (4) Getah toban simpor, *Dichopsis maingayi*.

It is stated by the director of the botanical gardens here that there are over ninety-two species altogether on the peninsula.

The composition of gutta-percha is resolvable into resins albin and fluavil, and, like India rubber, is a hydrocarbon. It was first brought into use in 1884, and is now extensively used for telegraph cables. The amount exported from Singapore in 1888 was 23,717 piculs, valued at \$1,112,478.

The amount exported to the United States alone for the quarter ending September 30, 1890, was 2,206 piculs, valued at \$52,316. The export of gutta-percha, like the export of almost every article of commerce from the Straits Settlements to the United States, has been on the rapid increase. In 1880 it was only \$190, which increased up to 1888 to \$4,169, showing that the importation for the last quarter only has been more than for all the years from 1880 to 1888, inclusive, and I predict that the export of gutta-percha to the United States from this port direct for the year ending December 31, 1890, will be over \$200,000. When I speak of exportations going "direct" to the United States I mean such goods as I invoice and so have account of. A large per cent of exports that are destined for American markets go via London and are so placed to the credit of the United Kingdom. It should be remembered, then, that in all computations and schedules that they represent but 75 per cent of our real export to the United States.

#### AMERICAN RUBBER GOODS.

In answer to inquiry as to what suggestions I would offer for the benefit of American rubber manufacturers desirous of extending their trade into my district, I can only reply that I see no reason why the American manufacturer should not compete with the English manufacturer in the sale of rubber goods here. There is no import or export duty on goods of any kind in this port.

Singapore is a city and island of 300,000 inhabitants, of whom I can safely estimate that 20,000 would be limited consumers of such goods. It rains here a little every day, thereby creating a demand for carriage tops, blankets, coats, and hats. For the benefit of those firms wishing to send samples of their goods I append the names of the following leading firms of Singapore with whom they could correspond:

Boustead & Co., Behn, Meyer & Co., Brandt & Co., Fisher, Huber & Co., Katz & Co., John Little & Co., Stiver & Co.

ROUNSEVELLE WILDMAN,

Consul.

UNITED STATES CONSULATE,

Singapore, December 7, 1890.

## DUTCH EAST INDIA.

## JAVA.

REPORT BY VICE-CONSUL BRENNING, OF BATAVIA.

India rubber is a product of some parts of Java, but in a limited quantity only. It is not yielded from vines but from trees.

The process of getting the rubber is by tapping the trees. The liquid so gained is exposed to the air, by which the watery part evaporates and the rubber substance remains.

There is, as far as I could ascertain, no American capital invested in Java for the cultivation of rubber trees.

The export of rubber from this island is very small. The export from Padang (Sumatra) is of more importance.

There is no export duty.

The produce is diminishing every year through natives recklessly overtapping the trees, which gradually die away.

Experiments of cultivation of the rubber tree are now made by the Netherlands India Government, and also on a small scale by some private landowners. The result is not fully known yet, because it takes about fifteen years before a tree can be tapped. It is believed, however, that the cultivation is susceptible and that culture will be profitable.

B. J. BRENNING,  
*Vice-Consul.*

UNITED STATES CONSULATE,  
*Batavia, April 3, 1891.*

## SUMATRA.

REPORT BY VICE-CONSUL EILBRACHT, OF PADANG.

India rubber is found in this island, some in the neighborhood of Sumatra. The latter rubbers are partly brought to the Padang market, whilst a good deal is offered at Singapore and Batavia.

The better qualities are called India rubber (in Malay getah kadjei). The inferior sorts, getah gietan, are known under this name in the United States also.

The rubber is gathered by making holes in the trees, out of which the rubber flows in a liquid state. While exposed to the air it is gradually hardening.

As natives take little care of the trees after having made the holes, it frequently happens that rubber is flowing on the ground, and thus contains earth and pieces of wood from the bark of the tree to which it adhered.

Exporters have tried to convince the natives to adopt other methods of gathering the rubber, and to do it in the same way as it is done in Para, but the natives are unwilling to change their old manner of collecting even for a better one.

When the rubber comes to the hands of export firms here it is cleaned as much as possible by cutting the pieces and picking out the wood and dirt, but it is impossible by present methods to get a perfectly clean sort.

American capital is not employed in rubber gathering or rubber trading in this district.

The amounts of crude rubber exported from Padang during the years 1885, 1886, 1887, 1888, and 1889 were as follows, in piculs, respectively: 631, 4,104, 1,086, and 455.

The exports to the United States (New York) in 1890 amounted to 422 piculs.

There is no export duty on India rubber.

The collecting of the rubber is made in a rude way, many trees perishing by it, and as there is no provision made for cultivation or new planting, rubber must get more and more scarce.

Native people are still on a too low grade of civilization to permit successful experiment in the cultivation of rubber trees.

A. H. EILBRACHT,

*Vice-Consul.*

UNITED STATES CONSULATE,

*Padang, December 22, 1890.*

---

### SIAM.

REPORT BY CONSUL-GENERAL CHILD, OF BANGKOK.

The rubber tree exists in small numbers in Siam, but no attempt has been made to collect the sap or to start the manufacture of rubber. Several parties have searched the country trying to find the tree in sufficiently large numbers to justify the starting of the industry, but they have invariably failed and the project has always been abandoned.

India rubber does not appear as an article of export or of import in the customs returns for Siam.

C. J. CHILD,

*Consul-General.*

UNITED STATES CONSULATE-GENERAL,

*Bangkok, November 29, 1890.*

---

### GUTTA-PERCHA IN PHILIPPINES.

REPORT BY CONSUL WEBB, OF MANILA.

As far as is known to the department of forests and mountains of the Philippines, the caoutchouc or India-rubber tree is not found in the Philippine Archipelago; it is certain that India rubber has never been a product of this consular district. But it is quite probable that an exploration of the hitherto unexplored jungles of the southern

islands would result in the discovery of this valuable tree, for the climate and apparently the soil are favorable to its growth. There are portions of nearly all the islands which have never been explored by white men who were capable of recognizing the rubber tree, and if the natives have discovered it they have not learned its value. There is a widespread conviction that this archipelago will yet be made to yield many articles of commerce the existence of which is yet unknown here, for the whole vast country, with the exception of the environs of the three principal ports, Manila, Iloilo, and Zebu, is almost as completely wild and undeveloped as it was three hundred years ago. There are hundreds of square miles of jungle rich with botanical treasures that are never disturbed by human foot, black or white, and it will probably never be known what they really contain until the Spanish Government awakes to the advantage and necessity of removing some of the obstacles that stand in the way of immigration to the Philippines, and encourage American and English capital to come in and develop the country.

But it may be of interest to those engaged in the rubber trade to know that about fourteen months ago gutta-percha found its way to Manila and that it promises to take a prominent place among the exports. For several years the natives of Zamboanga, Jolo, and other southern islands have been sending the crude gutta-percha under the name of "goma," by sailing vessels, to Singapore, from whence it was shipped to England and it, apparently, never occurred to them that a market might be found for it in Manila until some enterprising Chinamen sent a consignment here, which was promptly sold at \$12 per picul of 140 pounds. Since then the price has steadily advanced and gutta-percha is sold now at \$34 per picul. Within the past year about 1,000 piculs have been received, all of which has been sent to England, and agents have been sent to Zamboanga and the Sooloo Islands by two English houses in Manila to endeavor to secure larger quantities than have yet been sent here. For the past four months the receipts have averaged about 100 piculs per month and four houses are now handling it instead of the one which received the first consignment.

Gutta-percha, as is generally known, is taken from the *Isonandra gutta* tree which belongs to the natural order *Sapotaceæ*. It reaches a height of from 60 to 70 feet, when it is usually 3 and 4 feet in diameter and is found in Borneo and some of the Pacific islands. Its existence in the Philippine Archipelago seems never to have been suspected until within the past few years, and until within the past year it has not been quoted among the exports from Manila.

The method of preparation for the market is, probably, that adopted by many of the partially civilized natives of Borneo, who unwisely cut down the tree in order to get the sap and thus steadily diminish the sources of supply. But it is impossible to ascertain how the Philippine natives procure the gutta-percha, as nearly if not quite all that comes

to Manila now is sent from Zamboang by Chinamen who procure it by barter from the half savage Moros of that island. The latter bring it to the port from the deep jungles, into which they are, possibly, the only human beings who penetrate, and they are not disposed to impart, even to the Chinese buyers, the location of the trees nor the process of the preparation of the "goma." The gutta-percha comes to Manila in rolls or pillows weighing about 10 pounds each, and is a cork-like, light brown, odorless mass, streaked with white, which crumbles readily after the outside layer is broken. Dirt, leaves, and bits of bark are mixed with it, suggesting that the process of preparation is very primitive indeed. The Moros are not an industrious or provident class, and they are disposed to procure only sufficient gutta-percha to supply their temporary needs, which fact has caused the shipments to this port to be much smaller than they probably will be in the future if the Manila shippers succeed in encouraging a larger production. Now, that attention has been attracted to it as a profitable article for export, it is probable that an effort will be made to reach the sources of supply or induce the natives to bring in greater quantities. None has yet been sent to the United States.

The export duty is \$1 per ton of 1,000 Spanish kilograms and 1 per cent ad valorem gross.

#### RUBBER GOODS.

No rubber goods are imported from the United States direct, although it is possible that some may come here by way of England. I have, however, been unable to find any American manufactures of this class and am told that nearly if not quite all the rubber toys, shoes, and clothing come from England and Germany. Still there are very few of this class of goods used owing to the warm climate, which admits of only the lightest clothing at all seasons of the year. A few rubber overcoats of English make are worn by coachmen during the rainy season, and rubber boots and shoes are very rarely seen. Linen hose and leather and linen belting are used almost exclusively.

The import duty on manufactured India rubber is 38½ cents per kilogram of 2.20 pounds, and for waterproof clothing and woven goods 68 cents.

In reply to the nineteenth question, I would say that the masses demand cheap goods of every kind, and that while the merchants generally admit that American manufactures as a rule are better than the class of products sent here by England and Germany, they are considered too good for this market. The natives are too poor to buy anything but the lowest grades of goods and the European residents, the majority of whom are here but a short time (from two to five years), generally come supplied with what they need in the way of fine clothing, send to Hongkong for it, or defer their purchases until their

return home, knowing that they can get the better classes of goods there at almost half the price demanded for them here. Very light cheap coats and cheap toys are probably the only rubber goods that would find a market here.

There is no rubber used here for manufacturing purposes.

ALEX. R. WEBB,  
*Consul.*

UNITED STATES CONSULATE,  
*Manila, December 6, 1890.*

# CONTINENT OF AFRICA.

## ST. PAUL DE LOANDO.

REPORT BY VICE-CONSUL BANNISTER.

### THE RUBBER TREE AND VINE.

The India rubber tree and vine grow in immense numbers, both in the interior of this province and up as far as the oil rivers, say, from about 12° south to 5° north latitude. The production of this article for export is only of recent growth, very small quantities being shipped twenty years ago. The French in the colony of Gaboon were, I think, the pioneers in this trade, and it has extended, up to the present, north and south of that colony to the latitudes mentioned above, and there is every prospect of a further extension of production.

*Rubber.*—It is yielded by both trees and vines, the product of the former being greater in quantity and better in quality. The botanical names of the various trees and plants are unknown to me. According to a Portuguese dictionary, published in 1855 by Eduardo de Faria, the principal are the *Hevea caut-cheuc* and the *Jatropha elastica*.

### GATHERING RUBBER.

The trees and vines are treated very ruthlessly by the natives. At first incisions are made in the stems, into which reeds are placed to draw off the milk-like liquid, which drains into gourds or other vessels suspended for the purpose of receiving the same; but as soon as it is apparent that no further supply is forthcoming from such incisions the plant is uprooted and the roots crushed to extract what remains. The gourds containing the liquid are placed in vessels containing water, which is heated to a boiling point, the liquid during this process being frequently mixed with sand, grass, twigs, etc.; when of a proper consistency it is taken out and rolled into balls. What are termed in the trade Loando niggers bring the best prices in the markets, as being better prepared and cleaner than most samples. The "fingers" of the Gaboon districts are about the commonest quality shipped from the coast.

### THE RUBBER TRADE.

There is no American capital employed in the trade in this district. I doubt if Americans now care to enter into competition with Portuguese, English, French, and Germans along the coast, the facilities for



communication enjoyed by these countries being so great, coupled with the fact that each has more or less extensive colonies calling for regular intercourse with the mother country, that it is more than doubtful if it could be made to pay Americans with such odds against them. There is no doubt American goods such as cloth, hardware, machinery, lumber, furniture, tar, soap, provisions, etc., would, and in reality do, find a ready sale, but for shipping the difficulty is to find homeward cargoes. The English and German steamers bring a little cargo to this port, but they seldom take any away. They fill up chiefly in the oil rivers and along the west coast. Nearly all rubber goes in Portuguese steamers to Lisbon from this province.

## EXPORTS.

The quantities exported in 1889 from this district were as follows:

	Kilos.
From Mossamedes to Portugal .....	563
From Benguella to Portugal .....	1, 065, 217
From Benguella to other countries .....	44, 700
From Novo Redondo to Portugal .....	268
From Loando to Portugal .....	587, 608
From Loando to other countries: .....	21, 551
From Ambriz to Portugal .....	3, 709
From Ambriz to other countries .....	4, 368
Total .....	1, 727, 984

The production of this article has increased enormously in the last few years. The export from the principal ports in 1884 was between 300,000 and 400,000 kilos; the export in 1889, as shown in the foregoing table, being nearly five times as great. From Benguella alone nearly three times as much was exported in 1889 as from the ports mentioned taken together in 1884. This carries us back to paragraph 3, where the matters concerning the mode of collecting and probable effect of same on future supply are treated. A new source of supply was discovered some three years ago in the district of Bihée. This is a tuber, something like a large potato in appearance, from which, I am informed, a good quality of rubber is produced. It must be found in immense quantities in the country, as it is to the discovery of this new supply that Benguella owes the enormous increase in its export in the year 1889 as compared with previous years.

The mode of treatment of this tuber to extract the rubber, as also its botanical name, are both at present unknown to me.

## EXPORT DUTY.

There is an export duty of 3 per cent on produce shipped from Loanda, Benguella, and Mossamedes in Portuguese bottoms, and of 5 per cent on that shipped in vessels of other countries. There is no export duty on produce shipped from the port of Ambriz. The duty on rubber shipped from ports north of Ambriz, in the province, is 36 reis per kilo.

The revenue from export duties on rubber shipped from Loanda, Benguela, and Mossamedes in the year 1890 amounted to reis, 32,464,000, or \$35,061. As no statistics have as yet been published relating to ports north of Ambriz, I can not give the quantities shipped nor amount of revenue collected at such ports. The quantity, however, must have been some hundreds of tons during 1890.

#### DESTRUCTION OF THE RUBBER TREE.

There is a feeling abroad that unless means are adopted to put a stop to the present mode of gathering rubber the supply, sooner or later, must receive a serious check. As, however, there seems to be an almost unlimited number of trees and plants in the vast territories inland, and the collection of the rubber is entirely in the hands of the savages of the interior, no one considers himself called upon to interfere with the present process.

#### CULTIVATION OF THE RUBBER TREE.

I have no knowledge of any attempt having been made to cultivate the trees or plants.

That the tree, plant, or vine could be cultivated I have reason to believe. That the cultivation would prove profitable at present I doubt very much, for the reason stated in paragraph No. 7 as to supply, and the scarcity of labor that would necessarily be required.

#### MANUFACTURES.

As to "manufactures of India-rubber" I have only to say that there is a very limited demand indeed here for the manufactured article, which takes the form of packing for machinery, waterproof coats, etc. The value imported is not specified in the statistics published. I do not think it exceed in twelve months \$100 to \$200.

ED. BANNISTER,  
*Vice-Consul.*

UNITED STATES CONSULATE,  
*Loanda, April 29, 1891.*

---

#### ZANZIBAR.

#### REPORT BY CONSUL ROPES.

Replies to circulars are restricted by the fact that no statistics are procurable from the authorities of the port, and estimates and information can only be obtained from private sources, excepting the direct rubber trade with the United States, which, of course, is kept in consular records.

Rubber is yielded by trees in this district, but botanical names are unknown.

The trees are gashed and the juice collected in gourds for the first quality rubber. When slightly thickened so as to become stringy it is

wound into balls from 1 to 3 inches in diameter, and usually a little bark and sand is introduced. This collection is made by the negroes living in the rubber district on the coast south of the island of Zanzibar. After a small quantity has been collected the native carries it down to some one of the small coast towns and sells it, usually to a British Indian trader, who ships it to Zanzibar for foreign sale and export.

If the natives were content with taking merely the juice of the tree for the first quality of rubber we should have a much better article and not be in danger of the extermination of the rubber tree on this coast, which we are now threatened with; but after allowing all the juice to run that will they cut down the trees and pound the wood until all the sap is extracted. This produces a very inferior kind, mixed with bark and dirt, and of course destroys the tree and all hope of another yield.

No American capital is employed in gathering rubber, nor to my knowledge has any organized European or Indian attempts ever been made to gather rubber or protect the trees.

The most of the rubber district is now under the rule of the German and British East African companies, and it is hoped that some measure will be taken to these ends shortly.

The best estimates for an average of the total exports from the Zanzibar rubber district under ordinary conditions would be about 700,000 pounds per annum, but during the coast wars of the past two years the production has been reduced to one-third. It is stated that this rubber district, under proper European supervision, can yield annually many times this amount, and of course all trees would be preserved. Rubber is consigned principally to London and Hamburg. Exports to the United States direct are insignificant, amounting during the year 1889 to only 25,900 pounds, valued at \$11,457.88.

An average year would be about three times this amount. Much of this rubber goes to the United States via London.

An export duty of 15 per cent on the market price in Zanzibar is charged.

As mentioned before, the mode of collecting rubber in operation at present threatens the total extermination of the tree, but the amount of rubber collected and trees destroyed is so small in proportion to the number of trees, as stated by travelers, natives, and others, that we hope the cutting-down practice will be checked before the tree is exterminated.

No experiments in the cultivation of trees, vines, or plants have been made here to my knowledge.

I can obtain no information regarding probable results of cultivating rubber trees in this district. There appears to be enough trees and the rubber itself is said to be of good quality. With proper care of trees and Para methods of gathering, I feel sure that the most satisfactory results both as to quality and quantity would be obtained.

There are no manufactures of rubber imported or manufactured in this district.

Crude rubber imported here from a foreign country would pay 5 per cent duty.

Foreign manufactures would pay 5 per cent duty.

E. D. ROPES, Jr.,  
Consul.

UNITED STATES CONSULATE,  
Zanzibar, December 1, 1890.

## AUSTRALASIA.

### NEW SOUTH WALES.

REPORT BY CONSUL GRIFFIN, OF SYDNEY.

#### RUBBER TREES.

There is no India rubber manufactured in Australia. The few trees and plants that produce caoutchouc in New South Wales are of little commercial value. Mr. J. H. Maiden, F. L. S., F. C. S., curator of the Technological Museum, Sydney, who has given much attention to the useful plants of Australia, is of opinion that India rubber trees are essentially tropical, and that the species cultivated in New South Wales for experimental purposes are short-lived and, even under the most favorable circumstances, have a precarious existence. The plants, he says, fare better in Queensland and other tropical parts of Australia.

In New South Wales there are several native fig trees, notably *Ficus rubiginosa*, the Port Jackson fig, and *Ficus macrophycea*, the Morton Bay fig. The milky sap of these trees contains caoutchouc or India rubber, but the percentage is small, and up to the present it remains a curiosity of the laboratory. It seems as if a tropical heat is necessary for the formation of this product.

Mr. F. Turner, F. R. G. S., the government botanist of New South Wales, to whom I am indebted for valuable information on this subject, says that "there is a great future for the India-rubber trees in northern Australia."

Experiments have been made both on exotic and indigenous trees. The species of fig (*Ficus macrophylla*, Desf.) which are closely allied to the "Assam rubber" tree of India (*Ficus elastica*, Rox.) yield a very fair caoutchouc, and parties were collecting the sap at a place called Coomera, in southern Queensland, a few years ago. This tree is found growing abundantly in New South Wales and Queensland. It is easily propagated by seed. Another species of fig (*Ficus rubiginosa*, Desf.), which is also indigenous to New South Wales and Queensland, yields a caoutchouc, and it formed the subject of the following chemical investigation by Warren de la Rue and Hugh Miller in Watts' Dictionary, II, 646:

The resinous exudation resemble sulphur in appearance; varies in color from dirty red to almost white solid, generally brittle, but tough in the interior of large pieces; opaque, with dull and wax-like fracture; at 30° C. it softens, and becomes plastic like gutta-percha, but not so sticky, provided it has been previously wetted in water. In its natural state it has neither taste nor odor, but evolves an odor like that of wax when heated, and evinces a characteristic taste on being masticated. It is quite insoluble in water, either hot or cold. The greater part of it is soluble in cold alcohol, and a considerable portion of the remainder in hot alcohol, and by treating it with these solvents in succession it may be separated into the following constituents:

	Per cent.
Resinous substance sycoretin, easily soluble in cold alcohol .....	73
White crystalline substances chiefly acetate of sycoceryl, $C_{27}H_{55}O_2$ , $C_{29}H_{59}O_2$ , insoluble in cold but soluble in warm alcohol.....	14
Caoutchouc, fragments of bark, sand and loss.....	13

Mr. W. Hill, late colonial botanist of Queensland, when giving evidence before a select committee of the legislative assembly on Forest Conservancy, said, in answer to a question put by the chairman (the Hon. John Douglas), "Is there any probability of a good India rubber tree being discovered on our northern coasts?"

"I have not the least doubt that some of the fig trees on the Daintree and Johnston rivers will produce a good deal of India rubber." In a report which the colonial botanist furnished to the same committee on forest resources of Queensland, he says, "The fig tree reserves in the north would make excellent places for the acclimatization of such trees as the bottle India-rubber tree (*Siphonia elastica*), and the gutta-percha plant (*Isonandra gutta*), as I am convinced that they would flourish admirably there."

The exotic India rubber yielding trees and vines that are at present growing in Australia are, the Assam rubber tree (*Ficus elastica*, Rox.), which grows rapidly in the coastal districts of New South Wales and Queensland. It is easily propagated by seeds and cuttings. Mr. Turner says:

The Ceara rubber tree (*Manihot glazioni*, Muell.) was introduced and produced flowers in the botanic gardens, Brisbane, as far back as 1867. Good samples of rubber have been taken from this tree and exhibited among other economic products that were prepared at the botanic gardens, Brisbane, at the intercolonial exhibitions. The last time I saw this tree it was about 25 feet high, and as it will thrive on very poor dry soils it is one of the most valuable India rubber producing trees that has been introduced into Australia.

The West Indian rubber plant (*Castilleja elastica*, Cerv.) has been introduced and propagated, but the tree has not been long enough in the country to know what district is suited to its growth.

The India rubber vine (*Cryptostegia grandiflora*, R. Br.) grows exceedingly well in southern Queensland and produces both flowers and seeds; from the latter it is easily propagated.

The Para rubber tree (*Hevea brasiliensis*, Muell.) has also been introduced and propagated, but the tree has not been long enough in the country to know what district it will flourish in—that is, the most southern limit.

The African rubber vine (*Landolphia florida*, Benth.) is also growing in Australia, but it has not been long enough in the country to know what district it will flourish in.

Mr. Turner does not doubt that the systematic cultivation of rubber-producing trees in suitable localities would be a paying undertaking. He says:

It should be born in mind that the caoutchouc can not be obtained from the trees all the year round, only at stated periods to make it a success as a commercial undertaking.

He recommends that other crops of commercial value should be cultivated in the vicinity of India rubber reserves, as they could be harvested at times when the rubber was not in a fit state to collect. This he thinks would make the undertaking a most profitable one.

#### IMPORTS AND EXPORTS.

The value of India rubber goods imported into New South Wales for the year 1890 was £32,012 (\$155,786) against £24,594 (\$119,686) for 1888. These amounts, however, do not represent anything like the value of the imports, as many articles, such as rubber clothing, cushions, boots and shoes, are entered under the headings of drapery and boots and shoes. The articles described in the customs returns as India rubber includes, principally, garden hose, belting, tubing, valves, washers, packing for locomotives, etc. There is no way of ascertaining the quantity and value of each particular kind of goods.

The India rubber trade has increased since 1887, when the value of the imports was only £9,059 (\$44,085.)

The subjoined table shows the value of the imports of india-rubber goods into New South Wales for each year from 1885 to 1890, inclusive:

Year.	Value.	Year.	Value.
1885.....	\$103,009	1888.....	\$84,642
1886.....	79,766	1889.....	119,686
1887.....	44,085	1890.....	155,786

Small quantities of these goods are reexported to the other colonies.

The subjoined table shows the quantity and value of these reexports from New South Wales for each year from 1885 to 1889:

Year.	Packages.	Value.
1885.....	76	\$4,672
1886.....	164	4,088
1887.....	105	7,367
1888.....	178	10,467
1889.....	223	13,061

These exports, as in the case of the imports, do not include India-rubber clothing or wearing apparel—such as cloaks, coats, leggings, and boots and shoes. There is only a very small demand for rubber overshoes, on account of the mild climate in Australia. A few articles of this kind find their way to the southern parts of New Zealand, where there is snow

in the winter, but, as a general rule, the seasons are not severe enough to cause any great demand for such goods. The frequent rains, however, require the use of India rubber and other waterproof clothing. There is also a small demand for India-rubber boots and leggings in the seaport towns and in the mining districts. The bulk of the India-rubber goods used here comes from Great Britain. The value of the imports from that country in 1890 was £24,318 (\$118,343), while only £783 (\$3,815) came from the United States.

I append hereto a table showing the quantity and value of India-rubber goods imported into New South Wales in each year from 1888 to 1890, with the names of the countries whence imported:

Whence.	1888.		1889.		1890.	
	Pack-ages.	Value.	Pack-ages.	Value.	Pack-ages.	Value.
Great Britain .....	313	\$49,564	503	\$78,963	724	\$118,342
United States .....	115	7,897	79	4,569	101	3,810
France .....	7	1,100	6	949	2	78
Germany .....	129	12,097	150	15,158	111	11,800
Belgium .....	3	486	3	340	3	374
Australian colonies .....	213	13,494	280	19,704	321	21,377

It will be noticed in the preceding tables that some of these imports are set down to the other Australian colonies, but it should be understood that they were not manufactured in those colonies, but were only sent from England and reshipped to this colony. It will also be noticed that while England increased the value of her direct shipments from £10,185 (\$49,566) in 1888 to £24,318 (\$118,344) in 1890, that the shipments from the United States decreased during the same periods from £1,623 (\$8,019) to £783 (\$3,815). The extent of the direct imports of India-rubber goods into New South Wales from the United States will be best shown by the following table, giving the quantity and value of the imports for each year from 1884 to 1890:

Year.	Pack-ages.	Value.	Year.	Pack-ages.	Value.
1884 .....	64	\$4,890	1888 .....	115	\$7,897
1885 .....	75	3,820	1889 .....	79	4,569
1886 .....	78	6,258	1890 .....	101	3,810
1887 .....	75	3,507			

#### AMERICAN VS. ENGLISH GOODS.

I have had several interviews with members of leading firms here engaged in the india-rubber trade for the purpose of ascertaining the reason of the small shipments from the United States, but have been informed in each instance that the English had the trade and could furnish a better quality of goods at a lower price than the American manufacturer. In one article, however, that of medium-quality garden hose, it was admitted the Americans could undersell the English. One

merchant states that in regard to American India-rubber goods in general, if the quality was right the price was too high, and when the price was right the goods were inferior. Another firm stated that no objection was made to the quality, but only to the price. The manager of the Sydney branch of a New York firm informs me that he has been obliged to return all India-rubber goods consigned to him from New York last year, including several consignments of hose, belting, gum boots and shoes, carriage and wagon spring bumpers, etc., for the reason that the prices were entirely too high and that it would entail less loss on his firm to return the goods to the United States and pay freight and all other charges connected with their shipment than to sell them here.

He attributed the low prices of India-rubber goods in Australia to the large stocks in hand of the manufactures of the North British India Rubber Company. This firm, he said, has almost a monopoly of the trade and will not stand any rivalry. Considerable quantities of the manufactures of The India Rubber, Gutta Percha and Telegraph Works Company of Silvertown, England, are sold in this market. These include sheet rubber, valves, washers, tires, tubing, packing, garden and delivery hose, suction and high-pressure steam hose, waterproof garments, rugs, rubber and canvas belting, etc. The prices of these goods are about the same as those of the North British India Rubber Company, but it is said that the latter company have the run of the trade and have their goods more generally distributed among the principal stores and shops.

The Sydney agent of The India Rubber, Gutta Percha and Telegraph Works Company states that he has on several occasions endeavored to introduce American India-rubber goods into the Australian market, but each attempt proved a failure, principally on account of their high cost, although no fault was found with their quality, except that they were usually lighter in weight and did not appear to be as strong and durable as the English goods. The Messrs. Perdrian & Co., of Sydney, claim to be the largest importers of American India-rubber goods in New South Wales, and they inform me that the value of their imports from the United States during 1890 was about £5,000 (\$24,333). These imports consisted chiefly of rubber boots and shoes, and mechanical and druggists' India-rubber goods. They state—

There is a prejudice against American rubber goods, and the so-called "pure sheet" mentioned in American price lists does not at all compare with the same article of English manufacture. Also the American rubber boots and shoes (unless they are the very best grades) do not compare with British goods. We may mention that there is the same feeling against German and French goods, all of which perish much earlier than English goods.

There have repeatedly been agents sent out here from America (as also of course from other parts of the world) representing American rubber manufacturers, carrying samples and small stocks of their goods. These do not seem to have done much and the stocks have almost without exception been offered and bought by us at our own prices.



It is very generally admitted, however, that while the English and European goods have the advantage of lower prices the American articles are superior in both quality and style, and it is well known that they have carried off the prizes at international exhibitions whenever brought into competition with English and other European manufactures. In goods for the use of ladies the Americans have so far distanced all competitors that comparison is out of the question. If a stylish and well-fitting India-rubber cloak or garment of any kind is seen it is almost sure to be of American manufacture, and no one would ever think of attributing the origin of a clumsy, ill-shapen garment to the United States.

#### TRADE OBSTACLES.

Nearly all kinds of India-rubber clothing can be obtained at low prices in the United States, and the chief reasons that so few of these goods are sold here is that nearly 90 per cent of the whole of the foreign trade of the colonies is enjoyed by Great Britain. In the first place there is a direct medium of exchange with London and none with the United States. In fact the bulk of the business transactions with the United States is paid in drafts on London. The few banks in Australia that sell exchange on the United States charge three or four times as much as on London, and if a draft on New York or on any other large city of the United States is sold here the rates are usually from  $2\frac{1}{2}$  to 5 per cent, but even when such a draft is purchased it is only for a small amount. The present inconvenient system of banking between the United States and Australia was explained at length in my reports entitled "Cotton textiles in New South Wales," and "The Australasian and American trade." (See No. 118, Consular Reports, July, 1890.)

#### CUSTOMS DUTIES.

There are no duties charged on India-rubber goods imported into New South Wales, and the kinds entered under the heads of drapery, boots and shoes, etc., are also admitted free.

Many articles of India-rubber manufacture are also admitted free of duty into Victoria, such as boot elastic, washers, India-rubber bottles, stamps, erasers, buffers, tires, hose, and tubing. An ad valorem duty, however, of 25 per cent is charged on India-rubber clothing mixed with cotton, wool, or silk. India-rubber goods of all kinds pay an ad valorem duty of 15 per cent in Queensland and also in New Zealand, and  $12\frac{1}{2}$  per cent in Tasmania and West Australia, while they are admitted free into South Australia.

#### EXPANSION OF THE TRADE.

One of the difficulties with which the importer of American goods labors under is the absence of a knowledge of the condition of the American market. The latest intelligence as to that market is by the San Francisco mail steamers, which arrive in Sydney once every twenty-

eight days. Sometimes upon their arrival at Auckland, New Zealand, the prices of leading articles are cabled from there to Sydney, which brings the intelligence four days earlier, but cablegrams from the United States to the Associated Press, showing changes in American markets, are unknown here; while on the other hand the newspaper press publish daily all changes in the London market. These cablegrams are posted up in the stock exchange and other places throughout the colonies where they can be read by anyone interested, but information as to the American markets can only be acquired by private messages, which of course entail a heavy expense on those sending or receiving them. Nor is the exporter in the United States any better posted as the condition of the Australian market. The cost of a private cablegram from New York to Sydney is 10s. 6d. (\$2.56) per word, and from San Francisco to Sydney 11s. (\$2.68), and the cost of a message from London to Sydney is 24 cents less. Merchants here seldom have occasion to cable for information as to changes in the London market, as they are made known, as previously stated, in the public press. The great volume of trade between England and Australia very naturally tends to facilitate all kinds of business transactions.

There is at present considerable agitation, not only for the reduction of the cable rates but for additional cable communication, as present means of communication are not unfrequently interrupted through volcanic convulsions, and on several occasions there has been a complete break in all cable communication for several weeks at a time. At present there are two routes available for telegraphing with England and thence across the Atlantic to the United States. One is by submarine cable via Suez and Falmouth and the other via Persia. The facilities, however, for cabling are deemed insufficient and they will doubtless be improved. The American merchant will, of course, reap the advantage of a reduction of rates as well as the English, but there ought to be direct communication between here and San Francisco, as the distance will be many thousand miles shorter than by either of the present routes, and not only would materially lessen the cost but be the means of bringing the United States and Australia into closer business and other relations than at present exist between the two countries. Competent navigators have furnished the following statement of the distances between the United States and the Australasian colonies, namely: From San Francisco to Honolulu, say, 2,100 miles; Honolulu to Tutuila, say, 2,271 miles; Tutuila to North Cape, New Zealand, say, 1,700 miles; allow for slack and irregularities of the ocean bottom, say, 5 per cent, 300 miles; total, 6,371 miles.

As an alternate route other distances are furnished, viz: San Francisco to Honolulu, say, 2,100 miles; Honolulu to Tutuila, say, 2,271 miles; Tutuila to New Caledonia, say, 1,400; New Caledonia to Brisbane, say, 800 miles; allow for slack and irregularities of ocean bottom, say, 328 miles; total, 6,899 miles.

The line via the North Cape of New Zealand would meet with the New Zealand system, which is connected by cable at Cooks Straits to the southern end of Van Diemens Land. The route via New Caledonia would connect with the Australian system at Brisbane.

There are no serious obstacles in the way, as surveys and soundings have been made showing the practicability of a Pacific cable route.

The following estimates have been made as to the cost of construction of a cable from San Francisco to New Zealand, via Honolulu and Tutuila: 5,000 miles deep-sea cable, at \$1,000, \$5,000,000; 800 miles intermediate cable, at \$2,000, \$1,600,000; 570 miles shore-end cable, at \$3,500, \$1,995,000.

The cost at London of the cables alone would be, therefore, 6,370 miles, \$8,595,000; depositing on bottom, landings, franchises, concessions, and contingent expenses, \$1,405,000. Total, \$10,000,000.

It is reported that an English syndicate has been formed for the construction of a cable between Vancouver's Island and Australia and that the stock is being rapidly subscribed. This movement is said to be part of a plan of the Canadian Pacific Railway for pushing the trade between Canada and Australasia in connection with a line of fleet steamers between various colonial ports and Vancouver's Island. A subsidy for this service has already been voted by the Canadian legislature. With the view of fostering the trade with these colonies, Canada has removed the duties on wool. The American merchant, however, has very little to fear from the efforts of the Canadians to divert that portion of the Australian trade enjoyed by the United States, for the few articles that the Canadians manufacture do not at all enter into competition with the American ones; and as to the removal of the duties on wool, that, at the most, will be of little advantage to the Canadians, as Canada is too thinly populated and her manufacturing facilities are too limited to offer inducements for a market for wool or any other raw product of Australia.

The Australasians feel that they have a just cause of complaint against the United States for withholding from them for so long a period assistance in the way of subsidizing a mail steamship line between San Francisco and the colonial ports.

For many years the cost of the mail service has been wholly borne by these colonies, and New South Wales continued to contribute toward it long after it ceased to be of any advantage to her in the way of a quick transit of the mails to London, and the only plea for the continuation of the subsidy was the encouragement it gave to the commercial and friendly relations between the two countries. It should be mentioned, however, that the United States postal authorities have lately contributed toward the service, but the amount is very small compared with that borne by the governments of New South Wales and New Zealand; but the disposition lately shown by the United States to still further assist the line, so as to secure a faster and more frequent service, has

done much to remove the grounds for complaint. It has also been noticed ehre that, while the United States customs duties have been increased on certain grades of wool, no increase has been made on the kinds usually imported from Australasia.

#### COST OF FREIGHT.

The cost of freight on india-rubber goods from New York to Sydney by sailing vessels is 25s. (\$6.08) per ton, cubic measurement, the cost differing very little from that from London to Sydney. Should, however, goods be sent here by steamer via London the cost would be 50s. (\$12.16) to 65s. (\$15.82) per ton. These rates vary from time to time, according to the demand for freights; but the average cost during the year would perhaps be a little less than the figures given.

G. W. GRIFFIN,

*Consul.*

CONSULATE OF THE UNITED STATES,  
*Sydney, February 7, 1890.*

---

#### NEWCASTLE.

##### REPORT BY COMMERCIAL AGENT BAGGS.

Caoutchouc, or india rubber, is not a product of this district. The only tree that seems to bear any relation to the india rubber is what is known here as the Moreton Bay fig tree. It, however, is not cultivated for its rubber-bearing qualities, nor has there been, as far as I can learn, any experiment in that direction with it or any other rubber bearing or producing tree, plant, or vine.

New South Wales is not a manufacturing colony, and for that or some other reason does not seem in a hurry to open up or develop any of its wealth of resources, excepting gold, silver, and coal mining, and sheep and cattle raising. It at present is a free-trade country and seems content to let others do its manufacturing for it.

At this port the import returns for the year do not show a single rubber article, though large quantities of rubber goods, chiefly boots and waterproofs, are used here. This is accounted for, however, by the fact that most of the importing houses in this colony are located at Sydney, and the goods used here come through that medium.

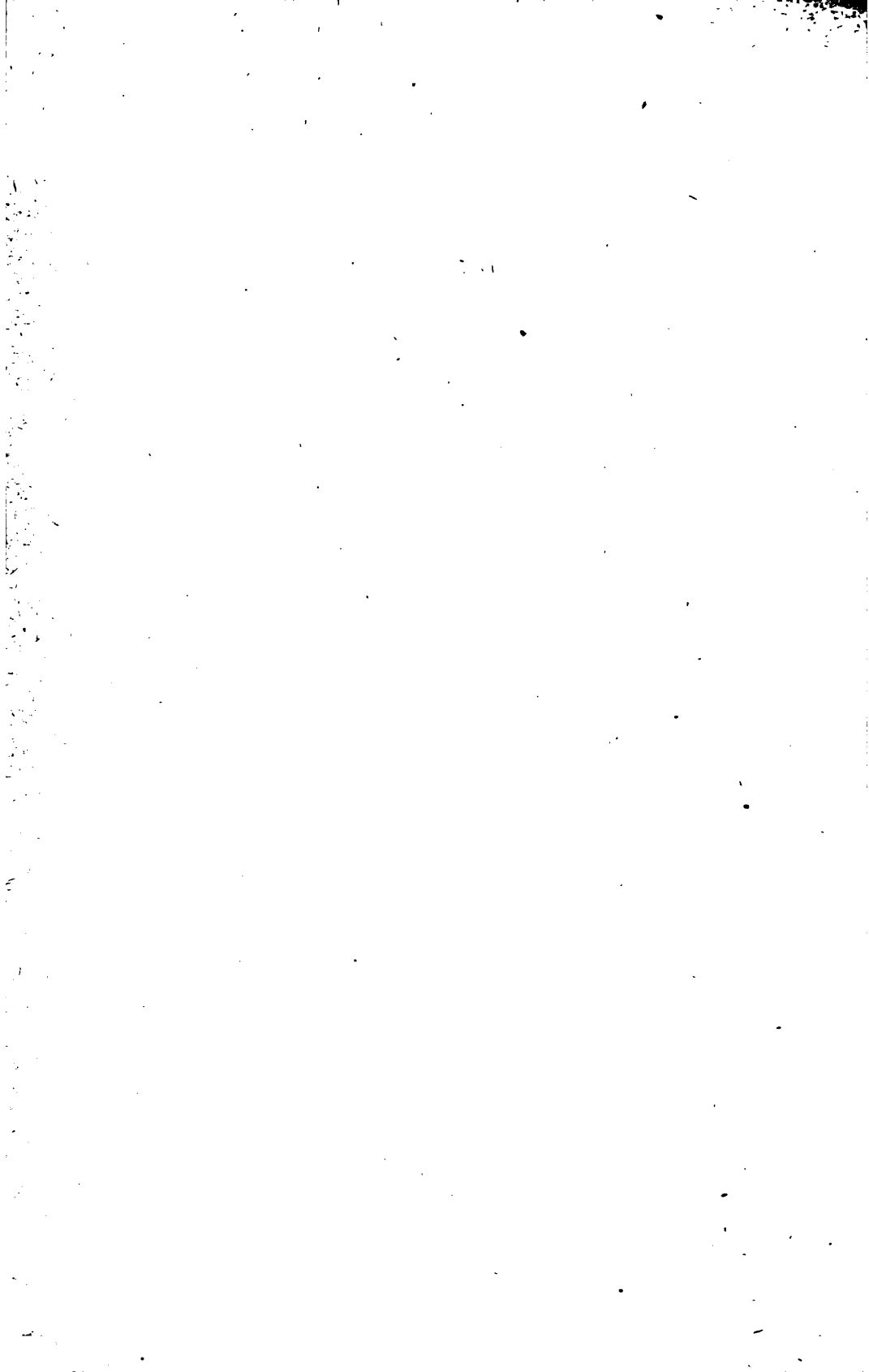
On making inquiries at the larger stores here I found no rubber articles of American manufacture, the field being entirely given up to British wares. This being the case, I could make no comparison between American goods and those of other countries.

If I were in possession of the data to be had through the Sydney office I could the better make suggestions that might be of benefit to American rubber manufacturers desirous of extending their trade in this direction,

However, if they can compete in price—and, certainly, from my limited experience I think they can—it only remains for them to get some reliable wholesale firm or firms to take hold of their wares and to make it worth their while to push them. This could best be done by sending some one out to make the necessary arrangements.

GEORGE T. BAGGS,  
*Commercial Agent.*

UNITED STATES COMMERCIAL AGENCY.  
*Newcastle, December 29, 1890.*



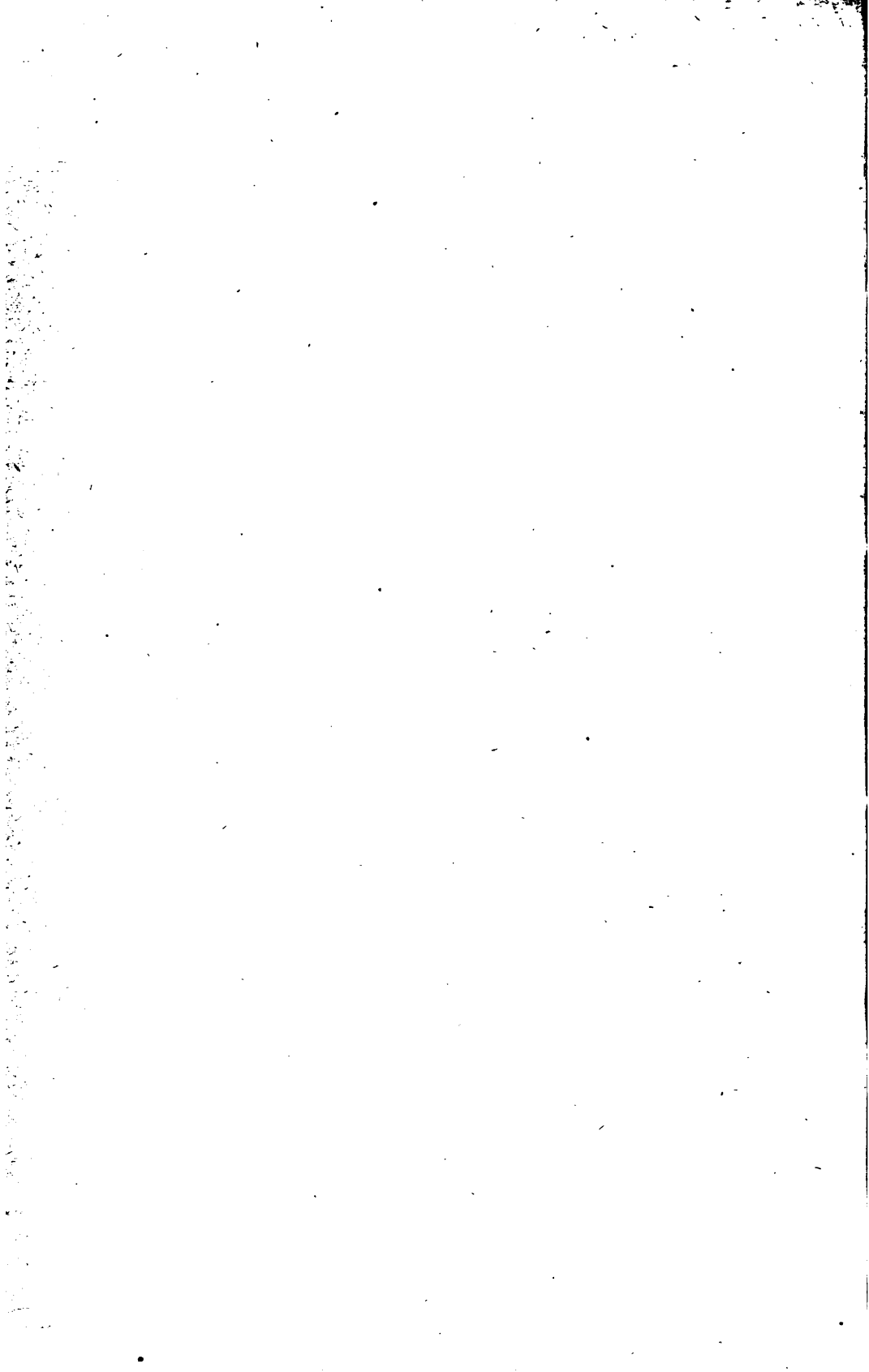
---

PART II.

---

RUBBER AND RUBBER MANUFACTURES.

---





## CONTINENT OF EUROPE.

---

### AUSTRIA-HUNGARY.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

*Manufactures.*—India rubber enters into the manufactures of Austria, and is one of old standing. The goods manufactured have reached a high standard of perfection, including objects for technical, scientific, and for almost all kinds of practical and other purposes. There are in Austria, besides several agencies for foreign manufacturing houses, about thirty-five larger or smaller establishments for the manufacturing of all sorts of articles made out of rubber or caoutchouc in its various states of preparation. The goods produced, wholly or partly of rubber, are: Rubber clothing (waterproofs and waterproof clothing, aprons, etc.), boots and shoes, stockings, leggings, gloves; hose of all kinds, wholly or partly of rubber, also with layers of textile fabric or wire; belting of all kinds, wholly or partly of rubber, also with layers of textile fabric or wire; objects for mechanical and technical purposes, as flanges, stuffings, valves, puffers, etc.; objects for surgical and scientific purposes; elastic tissues, toys, combs, canes and whips, etc.

*Exports.*—The total quantity of rubber and gutta percha and goods thereof exported was in 1890 2,131 metric centners, valued at 932,787 florins; in 1889, 2,275 metric centners, valued at 949,164 florins; the greater part of which was exported to or via Germany; then to or via Roumania, Italy, the ports of Trieste and Fiume; and smaller quantities to or via Russia, Servia, and Switzerland. These goods and their value are specified in the following table:

*Table showing the quantity and value of India-rubber goods exported from Austria-Hungary in 1890 and 1889.*

[1 florin = 38.1 cents; 1 metrical centner = 221½ pounds.]

Specification of goods.	Commercial value of metrical centners.	1890.		1889.	
		Quantity.	Value.	Quantity.	Value.
	Florins.	M. centners.	Florins.	M. centners.	Florins.
Caoutchouc, crude or purified .....	407	54	21, 978	130	52, 910
Ebonite, also polished, but not worked .....	430	22	9, 460	8	5, 400
Hose of all kinds, wholly or partially of caoutchouc, also with layers of textile fabric or wire .....	291	42	12, 222	71	20, 661
Belting of all kinds, wholly or partly of caoutchouc, also with layers of textile fabric or wire .....	300	5	1, 500	3	900
Shoes, etc .....	340	57	19, 380	162	55, 080
Toys .....	270	12	3, 240	17	4, 590
Goods of soft rubber, except hose, belting, shoes, and toys .....	464	968	449, 152	907	420, 848
Plates and strips of soft rubber, not vulcanized .....	500	1	500	11	5, 500
Fabrics coated, saturated, or covered with rubber, or connected by layers of rubbers .....	360	91	32, 760	121	43, 560
Clothing and other goods of rubber, or textile and rubber .....	665	101	67, 165	33	21, 945
Shoe elastics .....	665	54	35, 910	61	40, 565
Other elastic fabrics, woven and similar, or goods thereof .....	880	244	214, 720	236	207, 680
Goods of ebonite .....	135	480	64, 800	515	99, 525
<b>Total</b> .....		<b>2, 131</b>	<b>932, 787</b>	<b>2, 275</b>	<b>949, 164</b>

*Duties.*—Rubber and gutta percha, crude or purified, are free of and not subject to entrance duty.

The entrance duties imposed upon foreign manufactures of rubber are as follows:

	*Florins.
Caoutchouc and gutta percha, crude or purified .....	Free.
Caoutchouc and gutta percha, dissolved, rubber thread, not overspun, †100 kilograms .....	1. 50
Ebonite, also polished, but not worked otherwise .....	100 kilograms.. 6. 00
Hose and belting of all kinds, wholly or partly of rubber, also with layers of textile fabric or wire .....	100 kilograms.. 20. 00
Shoes and boots .....	do... 30. 00
Toys for children .....	do... 30. 00
Goods of soft rubber, except hose, belting, shoes, and toys .....	do... 30. 00
Plates and strips of soft rubber, not vulcanized .....	do... 10. 00
Fabrics, coated, saturated, or covered with rubber, or connected by layers of rubber .....	100 kilograms.. 45. 00
Clothing and other goods made of fabrics as above .....	do... 50. 00
Other elastic fabrics, trimmings, passementerie, also goods thereof .....	do... 70. 00
Goods of ebonite .....	do... 50. 00

*Imports.*—The imports into Austria-Hungary in 1890, of rubber or goods thereof, to the amount of 12,067 metric centners, of which were 4,580 metric centners rubber, crude or purified, and 7,487 metric centners goods manufactured wholly or partly of rubber, represented the total commercial value of 5,605,312 florins. The entrance duty paid therefor amounted to 203,782 florins in gold.

\* Gold.

† One metric centner equals 100 kilograms.

In 1889 there were imported 11,194 metric centners of rubber, or goods made thereof, of which were 4,283 metric centners rubber, crude or purified; 6,911 metric centners goods manufactured wholly or partly of rubber. The greatest part of rubber, and goods made thereof, were imported from or via Germany; then from or via the port of Trieste, and from or via Switzerland; smaller quantities from or via Fiume and other ports, and from or via Italy and Russia.

The quantity and value of the several kinds of rubber goods and the entrance duty imposed thereon are specified by the following table:

*Table showing the quality and value of rubber, or goods made thereof, imported into Austria-Hungary in 1890 and 1889, and the entrance duty imposed.*

Specification of goods.	Com- mercial value of 1 metric centner.	En- trance duty on 1 metric cent- ner.	1890.			1889.		
			Quan- tity, metric cent- ners.	Value.	Total duty.	Quan- tity, metric cent- ners.	Value.	Total duty.
				Florins.			Florins.	
				Silver.	Gold.		Silver.	Gold.
Rubber and gutta percha, crude or purified.....	407	Free.	4, 580	1, 864, 000	.....	4, 283	1, 743, 181	.....
Rubber, dissolved.....	675	1. 50	11	7, 425	1. 650	15	10, 125	22. 50
Rubber thread, not overspun.....	675	1. 50	810	546, 750	1, 215	737	497, 475	368. 50
Ebonite, also polished, but not otherwise worked.....	430	6	264	113, 520	1, 584	258	110, 940	1, 548
Ebonite, for carving purposes.....	430	6	191	82, 130	1, 146	129	55, 470	774
Hose of all kinds, of or with rubber, also with layers of textile fabric or wire.....	291	20	1, 025	298, 275	20, 500	1, 000	291, 000	20, 000
Belting of all kinds, wholly or partly of rubber, also with layers of textile fabric or wire.....	300	20	342	102, 900	6, 860	351	105, 300	7, 020
Shoes, etc.....	325	30	331	107, 575	9, 930	203	65, 975	6, 090
Toys.....	340	30	98	33, 320	2, 940	108	38, 520	3, 240
Goods of soft rubber, except belting, shoes, and toys.....	464	30	2, 686	1, 246, 304	80, 580	2, 437	1, 130, 768	73, 110
Plates and strips of soft rub- ber, not vulcanized.....	500	10	7	3, 500	70	8	4, 000	80
Fabrics, coated, saturated, or covered with rubber, or con- nected by a layer of rubber.....	360	45	189	68, 040	8, 505	233	83, 880	10, 485
Fabrics for carding machines, by permit.....	360	3	472	169, 920	1, 416	460	165, 600	1, 380
Clothing and other goods of fabrics coated, saturated, or covered with rubber.....	750	50	90	67, 500	4, 500	79	59, 250	3, 950
Shoe elastics.....	855	70	349	324, 045	25, 430	337	288, 135	23, 590
Other elastic fabrics, woven or similar; also goods thereof.....	1, 164	70	402	467, 928	28, 140	366	426, 024	25, 620
Goods of ebonite.....	750	50	219	184, 250	10, 950	190	142, 500	9, 500
Total.....	.....	.....	12, 067	5, 687, 442	203, 782. 50	11, 194	5, 218, 143	176, 778

*American goods.*—From the United States there were imported during the year 1888 rubber goods to the weight of 58,000 pounds, valued at \$6,958. These goods principally consisted in technical articles for machinery, beltings, and, especially, ebonite articles for dentistry. From what could be ascertained, the kind of rubber wares imported from the United States into this country, and the value thereof, has but little changed during the years of 1889 and 1890. It is probable that a good deal of American goods entered Austria-Hungary by way of the ports of Trieste and Fiume, and of Germany, particulars of which, however, could not be ascertained.

With the exception of technical articles for machinery, belting, and ebonite articles for dentistry, as mentioned in section 16, American rubber manufactures are but little known here. Aside from the great reluctance which, in this country, is shown to all innovations, both the high customs tariff and the cheapness of labor in Austria-Hungary tend to exclude every article of commerce from abroad, which is not a specialty, and even these are frequently imitated in this country by unscrupulous persons.

I can only say that in view of the above facts the obstacles in the way of an increased import of rubber manufactures from the United States to this country seem almost insurmountable, unless manufacturers confine themselves to the export of specialties which should be secured against imitation by trade-marks registered in this empire. It should especially be observed that such goods are properly packed to suit this market and according to the oftentimes peculiar customs laws. The Austrian merchants are rather conservative, and do not visit the United States. Hence they are little acquainted with the goods manufactured by us and with the wonderful progress the industries of the United States have made within the last two decades. Therefore I would suggest, as I have done before, the establishment of sample rooms in which to exhibit the line of such goods as can be profitably imported into this country. Such a sample room might be connected indirectly with the United States consulate in every large city of Europe. A number of manufacturers of the different branches of industry should combine and bear the expense connected with such an undertaking. By so doing the merchants here would have a constant opportunity to see the product of our industry, which might lead to a steady increase of our imports into this country, which is at present very moderate. The European countries have established such sample rooms all over the world, under the auspices of export societies, and in many instances achieve good results. They even go so far as to establish sample rooms on steamers which touch a number of ports, and thereby open new trade with oriental countries.

JULIUS GOLDSCHMITT,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Vienna, March 21, 1891.*

---

REICHENBERG.

REPORT BY COMMERCIAL AGENT DAWES.

Rubber enters into none of the manufactures in this district and consequently is not exported in any form.

There is no direct importation of rubber goods either from the United States or other countries, nor would it be possible to build up such a direct trade, as dealers here buy their small stocks from the large cities.

American goods are unknown here. I have never seen a pair of rubber boots in Austria, though clumsy rubber shoes are to be had, which contain no spring and are extremely heavy. These and Mackintoshes, which are much worn, are imported from England and Germany.

I think a trade might be made through dealers in the large cities of Prague and Vienna, so that eventually the goods would also reach this market.

JOHN B. HAWES,  
*Commercial Agent.*

UNITED STATES CONSULATE,  
*Reichenberg, November 6, 1890.*

### TRIESTE.

REPORT BY CONSUL HARTIGAN.

*Imports.*—See accompanying statement of imports and exports in transit.

*Manufactures.*—No India rubber manufactories in this consular district.

No importation of raw or manufactured rubber goods from the United States.

Although American rubber goods are not imported, they are regarded with favor here.

At present it is difficult to say, on account of the prevailing low prices and competition among the manufacturers in the interior. When the city ceases to be a free port, however, the new arrangement may open the field for introduction of American manufactures.

JAMES F. HARTIGAN,  
*Consul.*

UNITED STATES CONSULATE,  
*Trieste, December 16, 1890.*

*Statement showing the imports and exports of caoutchouc at and from Trieste, Austria, during the year ending December 31, 1889.*

Countries whence imported.	Description.	Quantity.
Imports in transit:		<i>Pounds.</i>
Egypt, 2,600; India, 5,900; France, 1,500; Great Britain, 440.	Raw caoutchouc .....	17,440
Great Britain, 1,100; Italy, 660; Austrian ports, 220.....	Manufactured caoutchouc ..	1,980
Exports in transit:	.....do .....	23,560
Greece, 6,600; Austrian ports, 5,300; Italy, 6,600; Turkey, 3,080; Malta, 1,100; Philippine Islands, 880.		

## BELGIUM.\*

REPORT BY CONSUL STEUART, OF ANTWERP.

"Caoutchouc," or "India rubber," is not manufactured in this consular district.

In reply to this question regarding the "extent of the importation of manufactures of rubber in this district," I offer the following figures, taken from the report of the board of trade of this city recently issued for the year 1889, showing the importation into Antwerp of manufactures of India rubber, namely, from England, to the value of 96,339 francs; from Germany, 5,708 francs; United States, 3,272 francs; Holland, 1,395 francs; and from France, 566 francs, making a total import of 107,280 francs. How many of these goods remain in this consular district there is no method of ascertaining.

The "amount and value of rubber goods imported from the United States," is answered above as fully as possible. The dealers in said goods inform me that the imports from the United States consist principally of boots and shoes.

The field is so limited in this district and American rubber goods are so poorly represented, being confined, as I have remarked, principally to boots and shoes, which do not give entire satisfaction on account of being too light and not fashioned to suit the tastes of the people, that there is no fair opportunity afforded for a comparison between the American goods and those of other countries.

In regard to the suggestions to be offered for the benefit of American manufacturers to extend their trade in this district, I would say that there are a number of considerable factories in Belgium, which find a home market for their products, and England has almost a monopoly of the foreign trade, as shown by the figures given above. In conversation with dealers I am told that they know but little of the American goods, as samples are rarely or never presented upon this market, and that the English goods are much liked and have a high reputation; still, if American samples were placed upon the market in quality and style to suit the tastes of the people, and the prices made to compete with those being offered from other parties, a share of the trade might be obtained.

In the report of the minister of finance for 1888, the latest official figures given upon the foreign trade of Belgium, the following statistics appear upon the imports of caoutchouc for transit and consumption.

The total imports of crude caoutchouc during 1888 amounted to 609,057 kilos, of which quantity 354,563 kilos were entered for consumption, and the remainder, 254,494 kilos were in transit. Of the above imports 289,091 kilos came from England, 135,357 from France, 70,468 from British India, 46,834 from Portugal, and the rest from Germany, Holland, and Brazil.

---

\**Rubber duties:* Crude rubber, free; rubber manufactures, 10 per cent.

The total value of general imports of manufactures of India rubber for the same time amounted to 1,830,955 francs, of which 643,628 francs were declared for consumption, and 1,187,327 francs were declared for transit. England furnished 630,050 francs, France 554,644 francs, Germany 526,343 francs, and the rest came from Switzerland and Holland.

JOHN H. STEUART,  
*Consul.*

UNITED STATES CONSULATE,  
*Antwerp, November 14, 1890.*

## BELGIUM.

REPORT BY CONSUL ROOSEVELT, OF BRUSSELS.

### CRUDE RUBBER IMPORTS.

Rubber is imported into Belgium from Austria, Brazil, Congo Free State, East Indies, England, France, Germany, Holland, Portugal, and other countries. The botanical name of the principal vine-producing caouthouc in the Congo is *Landolphia florida*.

There is no import or export duty on crude rubber in Belgium. During the years 1888, 1889, and first six months of 1890 the Congo Free State exported direct to Belgium the following amount of caoutchouc: 1888, 60 kilograms, 210 francs (\$40.55); 1889, 14,177 kilograms, 49,269.50 francs (\$9,509.01); the first six months of 1890, 17,262 kilograms, 60,417 francs (\$11,660.48). Since October 1, 1890, the Congo Free State has imposed an export duty of 50 francs (\$9.65) per 100 kilograms of caoutchouc exported.

The following table shows the amount of crude rubber imported into Belgium during the years 1887 and 1888, and countries from whence imported:

Countries.	1887.			1888.		
	Kilograms.	Francs.	Dollars.	Kilograms.	Francs.	Dollars.
Austria.....				3,586	12,551	2,422.34
Brazil.....				12,894	44,972	8,679.60
Congo.....	2,550	8,925	1,722.53	60	210	40.53
England.....	96,863	339,021	65,431.05	140,506	491,771	94,911.80
East Indies.....				70,468	246,658	47,601.13
France.....	59,984	209,944	40,519.19	59,423	207,980	40,140.14
Germany.....	7,217	25,260	4,875.18	11,341	39,693	7,660.75
Holland.....	5,804	20,314	3,920.60	5,985	20,947	4,042.77
Portugal.....	72,119	252,416	48,716.29	46,834	163,919	31,636.37
Other countries.....	194	679	131.05	3,571	12,499	2,412.31
Total.....	244,731	856,559	165,315.89	354,623	1,241,180	239,547.74

*Export of crude rubber for Belgium.*

Countries.	1887.			1888.		
	Kilograms.	Francs.	Dollars.	Kilograms.	Francs.	Dollars.
China.....	1,700	5,950	1,148.35			
Denmark.....	66,187	231,585	44,695.91	94,356	330,246	63,737.48
England.....	4,740	16,500	3,201.87	32,758	114,646	22,126.68
France.....	20,756	72,648	14,020.68	15,861	55,514	10,714.20
Germany.....	13,213	46,245	8,925.28	5,950	20,825	4,019.22
Hamburg.....				4,227	14,794	2,855.24
Holland.....	987	3,454	666.62	2,674	9,359	1,806.29
Luxemburg.....	1,205	4,217	813.88			
Russia.....				52,394	183,479	35,392.15
Switzerland.....	84	294	56.74	10,005	350,018	6,758.47
United States.....				36,680	128,380	24,777.34
Other countries.....	277	970	187.21	2,461	8,613	1,662.31
Total.....	109,129	381,951	73,716.54	257,364	900,774	173,849.38

## BELGIAN MANUFACTURES.

There are two rubber factories in the city of Brussels, C. Jenatzky Leleux and Eug. Pavoux & Co., who manufacture belting, hose of all varieties, rollers, molds, springs, tubing, stamps, joints, pipes, mats, packing, etc. Rubber cloth is not manufactured in this consular district, but is imported from England, France, and Germany.

## EXPORTS OF RUBBER GOODS.

During the years 1887 and 1888 rubber goods were exported from Belgium as follows:

Countries.	1887.		1888.	
	Francs.	Dollars.	Francs.	Dollars.
Brazil.....	1,620	312.66		
Chile.....			100	19.30
China.....	300	57.90		
England.....	19,370	3,738.41	11,956	2,308.09
France.....	53,878	10,398.06	78,113	15,075.81
Germany.....	10,062	1,941.97	34,403	6,639.78
Hamburg.....	2,050	395.65		
Holland.....	13,127	2,533.51	11,117	2,145.58
Italy.....	2,170	418.81	3,585	691.90
Luxemburg.....	12,928	2,495.10	3,875	747.88
Spain.....	1,943	375.00		
Switzerland.....	1,410	272.13	150	28.95
Other countries.....	1,505	290.47	7,544	1,455.99
Total.....	120,361	23,229.67	150,846	29,113.28

## IMPORTS OF RUBBER MANUFACTURES.

The following table shows the amount of manufactured rubber imported into Brussels during the year 1889, and countries from whence imported:

Countries.	Value of imports.		Duties received.	
	Francs.	Dollars.	Francs.	Dollars.
England.....	100,820	19,458.26	10,082.00	1,945.82
France.....	69,147	13,345.37	6,914.70	1,334.54
Germany.....	53,914	10,405.40	5,391.40	1,040.54
Holland.....	3,914	755.40	391.40	75.54
Total.....	227,795	43,964.43	22,779.50	4,396.44



Rubber clothing, shoes, etc., are imported from England, France, and Germany. England, however, principally supplies the trade. Russia also exports to Belgium rubber shoes and other articles of wearing apparel, but no entry of said goods appears upon the records of the custom-house at Brussels, as they are imported from Germany, and are consequently entered as German goods.

Such few American rubber goods as are sold in Belgium come from England, and are entered as English goods. The principal American goods sold in this city are rubber shoes, surgical and dental articles.

*Statement showing the manufactured rubber goods imported into Belgium.*

Countries.	1887.		1888.	
	Francs.	Dollars.	Francs.	Dollars.
England .....	360,445	60,565.88	408,825	78,903.23
France .....	102,007	19,687.35	104,740	20,214.82
Germany .....	80,880	15,609.84	115,798	22,349.01
Hamburg .....	531	102.48	3,604	695.57
Holland .....	6,262	1,208.57	8,156	1,574.10
United States .....			2,179	420.55
Other countries .....			326	62.92
Total .....	550,125	106,174.12	643,628	124,220.20

The duty on foreign manufactures of rubber coming into Belgium is 10 per cent ad valorem.

#### AMERICAN GOODS.

As mentioned above the greater part of American rubber goods found on this market is imported from England. I am informed by reliable dealers that American rubber goods are highly esteemed here, on account of their superior quality, and could such goods be placed direct upon this market at equally advantageous figures as similar goods coming from other countries a large and profitable trade might be established.

#### RUBBER STATISTICS.

*Statement showing the importation, exportation, and domestic consumption of crude caoutchouc in Belgium at various times since 1850.*

Description.	1850.	1860.	1875.	1880.	1885.	1886.	1887.	1888.
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>	<i>Kilos.</i>
Importations .....	4,540	57,974	152,277	196,789	159,166	180,824	244,731	354,623
Exportations .....	1,559	9,432	47,849	17,629	37,659	124,715	109,129	257,364
Consumption ....	2,981	42,542	104,428	121,507	121,507	56,109	135,602	97,259

*Statement showing the amount of articles manufactured from caoutchouc imported, exported, and consumed in Belgium at various periods since 1860.*

Description.	1850.		1860.		1875.		1880.	
	Francs.	Dollars.	Francs.	Dollars.	Francs.	Dollars.	Francs.	Dollars.
Importation .....	106,929	20,637.28	317,706	61,317.26	891,000	171,963	936,000	190,648
Exportation .....	924	178.33	30,738	5,932.43	197,000	39,021	226,000	33,618
Consumption .....	106,005	20,458.97	286,968	54,384.82	694,000	133,942	710,000	137,030

Description.	1885.		1886.		1887.		1888.	
	Francs.	Dollars.	Francs.	Dollars.	Francs.	Dollars.	Francs.	Dollars.
Importation .....	496,000	95,628	561,273	108,325.69	550,125	106,174.12	643,628	124,220.20
Exportation .....	135,000	26,055	123,739	23,881.63	120,361	23,229.67	150,846	29,113.28
Consumption .....	361,100	69,673	437,534	84,443.06	429,764	82,844.45	492,782	95,106.92

*Rubber goods dealers, in Brussels.*

C. Jenatzy-Leleux, 115 avenue de la Reine.  
Eug. Pavoux & Co., 14 and 16 rue De Launoy.

J. Bertrand, 25 rue des Canions.

Coenen & Co., 28 rue du Chmiste.

Ed. Bellens, 42 rue de la Riviere.

Edouard Bender & Co., 34 rue de la France.

Vre Botz & Co., 53 rue Belliard.

Adelin Briard, 64 rue Vande Weyer.

Franz Clouth, 23 rue des Riches Claires.

P. J. De Bosschère, 15 rue Honblon.

A. de Geradon, 4 rue de la Violette.

L. de la Charlerie, 87 rue De Mérode.

L. Delperdange, 126 rue Brabant.

Ed. Demets, 100 rue d'Allemagne.

Droeshout Soeurs, 2 rue du Chapeau.

H. Dubois, 100 rue de Terre-Neuve.

E. Elst, 45 rue Montagne des Herbes-Potageres.

G. Grubben, 109 rue de Progrès.

R. Himburg, 6 rue Zérégo.

H. Jamaulle, 27 rue des Riches-Claires.

A. Juhr & Co., 19 rue des Donge-Apôtes.

F. Klinkhammer, 65 rue Foulons.

E. Loeffler, 27 rue des Tanneurs.

Vre. G. Luyckx, 28 rue Neuve.

Ch. Maes, 2 Place Rouppe.

L. Mairlot, 18 Place Ste. Gudule.

J. Max, 51 rue des Bouchers.

P. Metz, 174 rue Masni.

Parmentier & Lemmer, 49 Boulevard du Midi.

Joseph J. Perry, 85 Boulevard Anspach.

Philippet & Co., 27 rue des Riches Claires.

J. Ramu, 151 rue de Terre-Neuve.

Eugène Reichert, 23 rue des Riches Claires.

M. Schleisinger fils, 10 rue Vieux Marche-aux Grains.

F. Schmetz, 33 rue des Comediens.

A. Stroobants, 8 rue Rouppe.

E. Van de Kerkhore, 24 rue de l'Evêque.

Vre. J. B. Verloay, 50 rue d'Arenburg.

H. Weyland, 14 Place Ste. Gudele.

I attach herewith price list of C. Janatzy-Leleux and Eug. Pavoux & Co.

GEO. W. ROOSEVELT,  
Consul.

UNITED STATES CONSULATE,  
Brussels, November 5, 1890.

## GHENT.

REPORT BY CONSUL OSBORNE.

There are two establishments in the city of Ghent for the manufacture of articles in India rubber. The most important is that of Mr. Pol. De Schamphelaere, to whom I am indebted for most of the information following. The other establishment makes a specialty of belting for machinery, some of which is exported to neighboring countries; but the proprietor has been afraid to give any information. My remarks are therefore confined to the larger one.

The principal articles manufactured are belting, hose, valves, rollers for machinery, joints, pads for doors and windows, cushions for billiard tables, rugs, erasers, etc.

Exports are made to France, Germany, Italy, and England.

Most of the rubber articles exposed for sale in the stores are imported from England, Germany, and France. Articles of wearing apparel, such as waterproof coats, cloaks, shoes, etc., come chiefly from England and Germany. A great variety of toys are imported from France and to some extent from Germany. The leading store in the city for the sale of all these classes of articles is also owned by Mr. De Schamphelaere. He reports that nothing is imported from the United States, and is unable to express an opinion on the quality of American productions.

In conclusion, I may say it seems possible for our manufacturers to secure a field in this part of Belgium. Generally speaking, if they can compete with the countries which I have mentioned as the sources of the imported articles, they should find a profitable field here. To this end they might communicate with those handling this class of goods. Circulars and inquiries, to be most effective, should be in the French language.

JOHN B. OSBORNE,  
*United States Consul.*

UNITED STATES CONSULATE,  
*Ghent, November 26, 1890.*

## LIEGE.

REPORT BY CONSUL DANFORTH.

The manufacture of India rubber is comparatively small and insignificant. The articles manufactured consist of clothing, hose, and belting, and does not fully supply home demand. Most of the other articles are wholly imported.

Exportation is of no importance.

Printed price lists do not exist and prices could not be obtained, as manufacturers and dealers do not find it worth the trouble to make them as they are not able to export.

The importation amounts to about \$200,000 per annum.

About 90 per cent of rubber goods are imported, but only a very small percentage, consisting especially of boots and shoes, came from the United States.

American rubber goods are considered of superior quality, but they are not as tastily made up, and on this account are not in such demand as goods from other countries, especially England.

The difference in the appearance of mackintoshes and waterproofs, as well as shoes, is very striking.

In order to create business in this country American manufacturers must, while keeping up the superior quality, pay more regard to the exterior finish, making goods more attractive.

JAMES R. DANFORTH,  
*Consul.*

UNITED STATES CONSULATE,  
*Liege, November 10, 1890.*

---

## DENMARK.

REPORT BY CONSUL RYDER, OF COPENHAGEN.

No india-rubber goods worth mentioning are produced in this consular district, and consequently none exported.

The extent of the importation of manufactures of rubber goods can not be given, as these wares are partly entered and classified under machinery, leather goods, and ready-made clothing, etc. The greater part is imported from Germany and England.

The amount and value imported from the United States can not be given, for the reason above stated, but it is said to be about the same as the imports from England. American rubber goods are regarded here as first class, fully equal to English and far superior to German.

The duties imposed upon foreign manufactures of rubber are on blocks, sheets, belting, etc., 10.25 crowns per hundredweight, and on other manufactures 33.33 crowns per hundredweight; equal to \$2.78 and \$9.06, respectively.

A Danish crown is equal to 26.80 cents, and one centnerweight English to 101½ Danish pounds.

HENRY B. RYDER,  
*Consul.*

UNITED STATES CONSULATE,  
*Copenhagen, December 30, 1890.*

## FRANCE.\*

REPORT BY COMMERCIAL AGENT LOOMIS, OF ST. ETIENNE.

Among European countries England, thanks to its well-organized looms for the production of light material, holds the supremacy in the market as far as india-rubber tissue coats and cloaks are concerned. France excels in the manufacture of small objects, such as tobacco pouches, balloons, toys, and those tissues destined for garters and suspenders. It is also devoting great energy to the manufacture of straps, tubes, and waterproof shoes, and is struggling to reconquer the market for vulcanized india rubber.

## VALUE OF THE OUTPUT.

The value of the French manufacture to-day is about 70,000,000 of francs, representing the home consumption, while the exportation amounts to nearly the same. The industry is now in a prosperous state, but is threatened by growing competition from Belgium, Germany, and Italy.

The considerable expenditure on coal for the vulcanizing process and the difference in price of the fabrication places the French industry in a less advantageous position than that of Italy or Germany.

## THE RAW MATERIAL.

The caoutchouc is imported in divers forms and in different degrees of purity according to the degree of civilization of the country from which it is procured.

## \* FRENCH RUBBER DUTIES.

*Under the present tariff.*

Rubber and gutta-percha imported from non-European country (crude).....	Free.
Rubber and gutta-percha imported by way of Europe, per 100 kilos. francs.	3. 60
Rubber and gutta-percha, manufactures of, per 100 kilos:	
Pure or mixed.....do.....	20. 00
On cloth or other material.....do.....	100. 00
As elastic cloth.....do.....	200. 00
Shoes.....do.....	60. 00
Ready-made rubber clothing.....do.....	120. 00

*Under the proposed tariff.*

Crude same as under existing law.

	General tariff.	Minimum tariff.
	Francs.	Francs.
Manufactures of:		
Pure or mixed.....per 100 kilos..	50	40
On cloth or other material.....do...	150	100
As elastic cloth.....do.....	200	150
Shoes.....do.....	80	60
Ready-made clothing.....do.....	200	150

It is received in the shape of thin sheets, called *feuilles anglaises*, and cut into square threads rolled around metallic mandrils. The elastic tissues are obtained by combining vulcanized India-rubber threads with wool and silk forming the warp, and cotton or silk threads forming the woof.

They are put on the market in the shape of braids, laces, and bands, not exceeding generally 6 inches in width, and are employed for hats, shoes, suspenders, gaiters, and bandages.

The manufacture of elastic tissues is chiefly pursued in St. Chamond, a suburb of St. Etienne, Rouen, Nimes, Mayenne, and Paris.

#### RAW MATERIAL USED.

In 1836 France employed 72,000 pounds of caoutchouc; in 1862, 1,800,000, and in 1870, 2,500,000 pounds were used. To-day this amount has increased to 4,000,000, representing 12,000,000 francs. The yearly exportation to all parts of the world of manufactured goods exceeds 600,000 pounds.

In spite of this apparent prosperity a part of this industry, especially that which concerns the boots and shoes, has suffered greatly in the last few years from the decline in the price and from a decrease in the exportations.

In the departments of the Loire and Rhone twenty-three manufactories, with 579 looms, existed in 1881; at present there are only twelve, with 219 looms.

#### THE TARIFF.

The tariff commission, which is drafting a new customs law for France, has recommended the increase of duties on all manufactured goods containing rubber. The object of the proposed increase is to exclude importations of manufactured articles from England, Belgium, Germany, and Italy.

*Table showing the actual duties and the proposed increase.*

Articles.	Present tariff.	Proposed tariff.	Articles.	Present tariff.	Proposed tariff.
	<i>Francs.</i>	<i>Francs.</i>		<i>Francs.</i>	<i>Francs.</i>
Caoutchouc, pure, and non-vulcanized and vulcanized			India-rubber wearing a p- parel .....	120	200
India-rubber thread, per 200 lbs.....	20	50	Slippers.....	60	80
Elastic tissue....per 200 lbs.	200	250	All other goods .....	40	90
Piece elastic tissue.....do..	100	150			

The indications are that the proposed increase of duties will be voted by the Parliament.

FRANCIS B. LOOMIS,  
*Commercial Agent.*

UNITED STATES COMMERCIAL AGENCY,  
*St. Etienne, April 30, 1891.*

## BRITTANY.

*REPORT BY VICE-CONSUL BENNETT, OF NANTES.*

India rubber, or caoutchouc, is not a product of this consular district, and so far as I have been able to learn no attempt has ever been made to cultivate the rubber tree on this western coast of France. There are no manufactures of rubber goods in this consular district, and very few or no imports of the crude article. Consequently the India-rubber industry of Nantes is confined exclusively to the retail trade, and with the exception of coats, cloaks, and such like garments, which certain merchant tailors make to order, is confined to a few dealers, who make a specialty of manufactured caoutchouc in all of its various forms.

At first thought one would be inclined to consider the rubber industry of Nantes as of minor importance, but upon reflection, when considering the multitude of articles that are manufactured wholly or in part from caoutchouc, or gutta-percha—the articles of necessity, the numberless articles of pleasure, and all the other various articles that are offered to the public; the useful with the ornamental; the various objects made for the medical and surgical service; toys to amuse children, together with coats, cloaks, boots, and shoes, and the quantity of rubber consumed in the rapidly increasing velocipedé craze—one is struck by the importance of this industry.

Owing to the climate, to the very wet weather which prevails here during the winter season—during the autumn and winter months at Nantes and throughout Brittany generally it rains a great portion of the time, a fact which accounts for a very extensive sale of coats, cloaks, etc.—every man, woman, and child of means possesses a rubber covering of some sort. The material in general use for men's and boys' coats is a rubber cloth resembling Scotch plaids or English cloth. These coats, having the appearance of an ordinary light overcoat, are given the preference over all others, notwithstanding the high price as compared with certain manufactures of the United States. Gents' coats, ready made, are sold at from \$10 to \$15 each, according to the quality; made to order, the price is somewhat increased—\$15 to \$18. Ladies' cloaks are made of lighter materials, and are quite elegant and not embarrassing.

Rubber shoes without heels are worn to a great extent. Shoes without heels are simply a covering for the toe and instep, running back to the heel of the boot, with an elastic band passing around the heel to keep them in place. This system leaves the heel of the under boot free, and the wearer is very much less likely to slip and slide than with the ordinary full shoe; at least such is the not unreasonable pretension of the manufacturers. These shoes are sold at from 80 cents to \$1 per pair.

Besides coats, cloaks, boots, and shoes, and the other innumerable articles made in part or wholly of rubber, there is the velocipede, which,

since the introduction of the bicyclette, has come suddenly into very general use, not with amateurs alone, but also in the army, where it is employed quite extensively. This industry consumes a large quantity of rubber for its wheels and pedals, which is furnished entirely by one English manufacturer.

The smaller articles—balls, doll babies, toys of all sorts—together with the numerous objects of utility, are mostly of French manufacture.

Cloth for coats and cloaks is divided between French and English manufacturers.

Having now passed hurriedly over the different kinds of rubber goods that are offered for sale by the dealers of Nantes, I am sorry to add that there are few, if any, articles in the foregoing list supplied by manufacturers of the United States. The very few articles of our manufacture that might be found here are brought from Paris and are laden with extra freight and commissioners' expenses.

Here is an industry; here is a market worth securing; and I have no doubt that by operating intelligently manufacturers of the United States could gain a large part of this trade. It would be necessary to export directly to Nantes by way of St. Nazaire, and avoid as much as possible all unnecessary freight and commission charges. By this means first-class goods could, I think, be offered to the public at lower prices than are actually paid for the same. Goods shipped by way of Havre, and from there passing through the hands of commission men of Paris, arrive at Nantes heavily handicapped as to price. This idea would apply not only to rubber goods, but to manufactures of the United States in general. Our manufacturers as a class do not search markets for their goods with sufficient care; they seem always ready and willing to export their goods to Paris and the other capital cities of Europe, but neglect largely the smaller provincial cities. This is, it seems to me, a very grave error. They do not, and with reason, care to ship their goods to a foreign port more or less unknown and there consign them for sale to persons they know nothing of. On the other hand, small tradespeople here can hardly be expected to send directly to the United States, and there apply for their goods to persons entirely unknown to them; hence they go to Paris, where they can see what they purchase; but there they are obliged to pay the third party's commission or profits. Is there not some way to overcome this difficulty, which in reality is nothing more than a difficulty of nonacquaintance? Could not manufacturers, through the agency of the consular service, secure reliable young men to represent them abroad? I think they could. It would need a little confidence on the part of manufacturers and some discretion on the part of consular officers. Or, in order to make the expenses lighter to each individual manufacturer, let six or eight or more manufacturers combine and send energetic persons over to Europe to open depots in the larger provincial cities of Europe, where the different manufactures of the United States could be



seen and appreciated; where samples of goods could be placed before the dealers, and comparison made with those of French, English, or German manufacture. I am certain that with a little energy and intelligence, a depot always open where goods could be seen, a good trade, a good and durable industry could be secured that is now possessed by the English and German manufacturers. Direct importation is what is most to be desired, and this could be accomplished without much difficulty if the question of acquaintance and confidence were once settled. A large wholesale warehouse at Nantes could supply the whole western coast of France with but little expense.

A comparison of the imports of rubber to France from the United States and from England for the year 1889 shows very unfavorably for the United States:

	United States.	England.
Crude rubber.....	<i>Franks.</i> 397, 122	<i>Franks.</i> 4, 478, 382
Manufactured.....		1, 043, 462
Total.....	397, 122	8, 521, 844

From this statement it appears that England furnishes twenty times more rubber, crude and manufactured, to France than the United States. It belongs to our manufacturers to remedy this.

H. D. BENNETT,  
*Vice-Consul.*

UNITED STATES CONSULATE,  
*Nantes, November 4, 1890.*

*Cognac.*—The little rubber used here in a retail way is manufactured in Paris or elsewhere, and I can not learn of any American rubber goods being imported here.

To introduce American rubber manufactured goods, it would have to be done through agents in Paris or Bordeaux.

WM. S. PRESTON,  
*United States Consul.*

COGNAC, *December 11, 1890.*

#### HAVRE.

##### REPORT BY VICE-CONSUL HAYNE.

There are no manufactures of india rubber in the Havre consular district.

As there are no manufactures of india rubber in this district, all the exportations which go through the port of Havre, whether crude or manufactured, are either from depot here, or from the interior.

The values of the importations not being attainable at the Havre customs, were procured from the Havre Chamber of Commerce, and are as follows:

	1886.	1887.	1888.	1889.	1890.*
Crude India rubber .....	\$822,652	\$1,628,395	\$1,554,117	\$1,451,057	\$1,458,211
Manufactured India rubber .....	49,372	49,356	83,182	71,647	62,120

\*Nine Months.

The crude importations passing through the port of Havre (all destined to other places) come from all india rubber-producing countries, direct or via the United States, whilst the manufactured (also destined to other places) comes chiefly from the United States; also india rubber manufactured goods used at Havre come from French or American houses at Paris.

The values of the exportations not being attainable at the Havre customs, were procured from the Chamber of Commerce, and are as follows:

	1886.	1887.	1888.	1889.	1890.*	Total.
Crude india rubber .....	\$349,388.20	\$408,222.60	\$465,641.80	\$388,846.60	\$469,505.80	\$2,021,605.00
Manufactured india rubber .....	324,411.60	336,152.40	405,850.80	361,417.80	334,085.60	1,761,918.20

\* Nine months.

*Exports from Havre, France, to the United States of crude India rubber, as per consular invoices issued from this consulate, from and including the year 1886 to the third consular quarter of 1890.*

Year.	Amount.	Value.
	<i>Pounds.</i>	
1886 .....	196,658	\$140,133.32
1887 .....	107,723	61,590.14
1888 .....	168,598	78,446.87
1889 .....	344,144	100,434.87
1890 (nine months) .....	205,241	129,472.21
Total .....	1,022,364	510,077.41

I would suggest, for the benefit of American rubber manufacturers desirous of extending their trade in this district, the employment of experienced and able American commercial agents or travelers, thoroughly understanding the French language, and being well acquainted with French commercial business habits. The German and English owe to such means the successful laying of their goods on the French markets.

JAMES B. HAYNE,  
Vice-Consul.

UNITED STATES CONSULATE,  
Havre, November 18, 1890.

## IMPORTATIONS.

*Statement of amount of India rubber, crude or melted and manufactured, imported through the port of Havre during the years 1886, 1887, 1888, 1889, and the first nine months of 1890.*

## GENERAL COMMERCE.

Years.	1886.	1887.	1888.	1889.	† 1890.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Crude India rubber or melted.....	1, 713, 859	3, 131, 528	2, 988, 687	3, 023, 035	3, 033, 292
Manufactured India rubber.....	54, 309	54, 291	91, 500	78, 841	68, 332

† Nine months.

\* As translated for the Havre customs returns.

## EXPORTATIONS.

*India rubber and gutta-percha, crude or melted, in blocks (exported through the port of Havre) during the years 1886, 1887, 1888, 1889, and the nine first months of 1890.*

	<i>Pounds.</i>		<i>Pounds.</i>
1886.—Germany.....	96, 514	1888.—Spanish America.....	1, 760
Holland.....	33, 888	Martinique.....	55
Belgium.....	20, 902	French Guiana.....	2, 220
England.....	244, 891		
Spain.....	1, 465	Total.....	779, 879
United States of America.....	324, 832		
New Granada.....	1, 100	1889.—Denmark.....	12, 320
Brazil.....	2, 085	Germany.....	228, 861
Argentine Republic.....	396	Holland.....	37, 140
Spanish America.....	1, 276	England.....	177, 568
Martinique.....	422	Portugal.....	1, 595
Total.....	727, 891	Greece.....	317
		United States of America.....	344, 694
1887.—Norway.....	72	New Granada.....	286
Denmark.....	13, 200	Brazil.....	974
Germany.....	143, 721	Argentine Republic.....	629
Holland.....	26, 475	Chile.....	374
Belgium.....	12, 531	English North America.....	5, 060
England.....	391, 283	Guadeloupe.....	266
Portugal.....	86	Martinique.....	11
Spain.....	24		
Italy.....	3, 780	Total.....	810, 095
Switzerland.....	13, 730		
United States of America.....	179, 397	1890.*—Russia.....	24, 470
Brazil.....	623	Sweden.....	435
Guadeloupe.....	178	Denmark.....	33, 955
Total.....	785, 080	Germany.....	121, 743
		Holland.....	12, 423
1888.—Germany.....	199, 465	Belgium.....	8, 580
Holland.....	27, 379	England.....	240, 222
Belgium.....	8, 800	Portugal.....	1, 078
England.....	255, 277	Spain.....	132
Portugal.....	3, 212	United States of America.....	502, 955
Japan.....	517	New Granada.....	394
United States of America.....	278, 425	Brazil.....	1, 287
Mexico.....	818	Argentine Republic.....	55
Brazil.....	449	English America.....	10, 340
Chile.....	1, 502	French Indo-China.....	1, 076
		Martinique.....	594
		Total.....	959, 676

\*From January 1st to September 30th.

*Manufactured India rubber and gutta-percha exported through the port of Havre, France, during the year 1886, 1887, 1888, 1889, and the nine first months of 1890.*

**MANUFACTURED INDIA RUBBER AND GUTTA-PERCHA, PURE AND MIXED.**

	Pounds.
1886.—Sweden.....	6,424
Norway.....	3,579
Denmark.....	3,051
Germany.....	3,320
Belgium.....	594
England.....	7,214
Portugal.....	8,831
Spain.....	1,808
Japan.....	4,879
United States of America.....	38,891
Mexico.....	3,396
New Grenada.....	22,380
Brazil.....	15,525
Uruguay.....	600
Argentine Republic.....	18,196
Chile.....	3,262
Peru.....	1,045
St. Thomas.....	576
Algiers.....	779
Guadeloupe.....	2,092
Martinique.....	2,334
Reunion.....	1,170
<b>Total.....</b>	<b>149,936</b>

**APPLICATIONS ON TISSUES.**

Germany.....	1,606
England.....	5,302
New Grenada.....	8,419
Brazil.....	418
Argentine Republic.....	5,016
Chile.....	1,909
Peru.....	415
<b>Total.....</b>	<b>23,085</b>

**ELASTIC TISSUES.**

Sweden.....	1,137
Denmark.....	3,757
Germany.....	58,273
England.....	7,486
Portugal.....	1,373
Spain.....	653
United States of America.....	63,793
Mexico.....	6,787
Guatemala.....	488
New Grenada.....	7,104
Brazil.....	8,932
Uruguay.....	1,857
Argentine Republic.....	7,187
Chile.....	5,069
Peru.....	4,314
Ecuador.....	147
Haiti.....	352
St. Thomas.....	576
English America.....	880
Algiers.....	2,442
Martinique.....	50
<b>Total.....</b>	<b>182,657</b>

**BOOTS AND SHOES.**

Sweden.....	94
England.....	2,272
China.....	253
Guatemala.....	59
Brazil.....	88
Argentine Republic.....	488
Chile.....	2,171
St. Thomas.....	154
<b>Total.....</b>	<b>5,579</b>

**MANUFACTURED INDIA RUBBER AND GUTTA-PERCHA, PURE AND MIXED.**

	Pounds.
1887.—Sweden.....	1,551
Norway.....	1,315
Denmark.....	7,869
Germany.....	539
Holland.....	61
Belgium.....	33
England.....	24,838
Portugal.....	20,857
Spain.....	3,560
Turkey.....	292
Egypt.....	198
English Africa (East).....	119
Holland India.....	1,210
Philippine Islands.....	264
China.....	1,010
Japan.....	13,910
United States of America.....	43,421
Mexico.....	1,315
New Grenada.....	23,263
Brazil.....	9,900
Uruguay.....	704
Argentine Republic.....	20,902
Chile.....	297
Peru.....	350
Haiti.....	411
St. Thomas.....	321
English America (North).....	649
Spanish America.....	724
New Caledonia.....	534
Algiers.....	396
Guadeloupe.....	1,139
Martinique.....	220
Reunion.....	2,380
<b>Total.....</b>	<b>184,662</b>

**APPLICATIONS ON TISSUES.**

Denmark.....	682
Eastern Africa.....	57
United States of America.....	1,773
Mexico.....	105
Argentine Republic.....	220
Chile.....	120
Gaboon.....	44
<b>Total.....</b>	<b>3,001</b>

**ELASTIC TISSUES.**

Sweden.....	5,623
Norway.....	53
Denmark.....	7,324
Germany.....	9,8757
Holland.....	2,486
England.....	5,381
Portugal.....	1,854
Spain.....	1,573
Turkey.....	818
United States of America.....	49,821
Mexico.....	12,102
Guatemala.....	1,342
New Grenada.....	3,529
Venezuela.....	350
Brazil.....	3,738
Uruguay.....	332
Argentine Republic.....	6,617
Chile.....	4,855
Peru.....	2,314
Haiti.....	154
St. Thomas.....	1,311
English America (North).....	552
Spanish America.....	154
Cochin China.....	208
Algiers.....	1,087
<b>Total.....</b>	<b>207,395</b>

*Manufactured India rubber and gutta-percha exported through the port of Havre, France, during years 1886, 1887, 1888, 1889, and nine first months of 1890—Continued.*

## BOOTS AND SHOES.

	Pounds.
1887.—England.....	864
Brazil.....	825
Chile.....	132
Total.....	<u>1,821</u>

MANUFACTURED INDIA RUBBER AND GUTTA-PERCHA,  
PURE AND MIXED.

1888.—Russia.....	785
Sweden.....	2,417
Norway.....	1,135
Denmark.....	471
Germany.....	16,933
Belgium.....	9,948
England.....	5,634
Portugal.....	24,741
Spain.....	3,797
Turkey.....	50
Egypt.....	2,473
East Africa.....	638
China.....	1,430
Japan.....	6,518
Australia.....	458
United States.....	27,471
Mexico.....	4,998
New Granada.....	20,048
Brazil.....	13,336
Uruguay.....	686
Argentine Republic.....	16,168
Chile.....	3,548
Peru.....	220
Haiti.....	2,919
St. Thomas.....	402
English America (North).....	209
Spanish America.....	1,434
Indo-China (French).....	603
Algiers.....	1,067
Guadeloupe.....	2,448
Martinique.....	396
Réunion.....	1,535
Total.....	<u>174,916</u>

## APPLICATIONS ON TISSUES.

Denmark.....	134
Germany.....	1,949
England.....	132
Portugal.....	1,377
Spain.....	64
United States of America.....	7,088
Mexico.....	4
New Granada.....	132
Brazil.....	1,236
Argentine Republic.....	372
Chile.....	220
Peru.....	440
English America (North).....	319
Algiers.....	306
Total.....	<u>13,793</u>

## ELASTIC TISSUES.

Japan.....	1,267
Russia.....	127
Sweden.....	4,433
Norway.....	297
Denmark.....	13,455
Germany.....	123,741
England.....	3,317
Portugal.....	6,816
Spain.....	42
Turkey.....	248
Africa.....	213
Australia.....	440
Philippines.....	264
United States of America.....	46,140
Mexico.....	16,881

## ELASTIC TISSUES—continued.

	Pounds.
1888.—Guatemala.....	675
New Granada.....	2,277
Venezuela.....	387
Brazil.....	8,380
Uruguay.....	440
Argentine Republic.....	7,865
Chile.....	1,071
Peru.....	3,533
Ecuador.....	770
Haiti.....	303
St. Thomas.....	10,428
English America (North).....	284
Spanish America.....	4,046
Indo-China (French).....	185
Gaboon.....	114
Total.....	<u>258,439</u>

## BOOTS AND SHOES.

Denmark.....	462
England.....	264
Portugal.....	952
Turkey.....	1,784
Egypt.....	5,568
Australia.....	1,560
United States of America.....	48
Brazil.....	1,320
Argentine Republic.....	550
Chile.....	308
French Guiana.....	1,032
Total.....	<u>13,846</u>

MANUFACTURED INDIA RUBBER AND GUTTA-PER-  
CHA, PURE AND MIXED.

1889.—Sweden.....	1,632
Norway.....	550
Denmark.....	301
Germany.....	6,010
England.....	5,494
Portugal.....	24,169
Spain.....	6,536
Roumania.....	1,093
Turkey.....	2,358
Egypt.....	1,192
Eastern Africa.....	334
Other part of Africa.....	66
China.....	803
Japan.....	12,249
Philippines.....	5,586
Australia.....	1,126
United States of America.....	48,367
Mexico.....	5,555
New Granada.....	1,942
Brazil.....	12,397
Uruguay.....	4,676
Argentine Republic.....	12,784
Chile.....	1,855
Peru.....	4,239
Haiti.....	880
St. Thomas.....	354
English America (North).....	37
Spanish America.....	1,140
Dutch America.....	1,062
Algiers.....	4,690
Réunion.....	1,146
Indo-China (French).....	191
Martinique.....	143
Guadeloupe.....	1,082
Total.....	<u>171,939</u>

## APPLICATIONS ON TISSUES.

Denmark.....	136
Germany.....	1,089
Portugal.....	1,060
Turkey.....	269
United States of America.....	2,739

*Manufactured India rubber and gutta-percha exported through the port of Havre, France, during years 1886, 1887, 1888, 1889, and nine first months of 1890—Continued.*

## APPLICATIONS ON TISSUES—continued.

	Pounds.
1889.—New Granada .....	807
Venezuela .....	158
Argentine Republic .....	1,019
Chile .....	473
Guadeloupe .....	268
Martinique .....	409
Reunion .....	57
<b>Total .....</b>	<b>8,584</b>

## ELASTIC TISSUE.

Sweden .....	4,519
Norway .....	570
Denmark .....	11,946
Germany .....	53,079
Holland .....	66
Belgium .....	1,973
England .....	18,766
Portugal .....	3,914
Spain .....	48
Philippines .....	5,430
English India .....	257
China .....	495
Japan .....	2,845
United States of America .....	57,108
Mexico .....	16,247
Guatemala .....	546
New Granada .....	2,240
Venezuela .....	823
Brazil .....	11,869
Uruguay .....	1,967
Argentine Republic .....	14,144
Chile .....	4,085
Peru .....	5,634
Ecuador .....	132
Haiti .....	68
St. Thomas .....	1,615
Spanish America .....	79
English America (North) .....	11,788
French Guiana .....	1,489
<b>Total .....</b>	<b>233,740</b>

## BOOTS AND SHOES.

England .....	1,003
Philippines .....	748
Mexico .....	308
Venezuela .....	158
Brazil .....	612
Argentine Republic .....	114
Chile .....	6,534
<b>Total .....</b>	<b>9,477</b>

## MANUFACTURED INDIA RUBBER AND GUTTA-PERCHA, PURE AND MIXED.

1890.*—Sweden .....	1,256
Norway .....	2,433
Denmark .....	1,866
Germany .....	2,558
Holland .....	2,233
Belgium .....	180
England .....	3,221
Portugal .....	13,200
Spain .....	5,355
Turkey .....	1,318
Egypt .....	1,001
English Africa (East) .....	1,223
Other parts of Africa .....	8,281
Dutch India .....	396
Philippines .....	198
China .....	418
Japan .....	2,360
United States of America .....	29,447
Mexico .....	1,602
New Granada .....	1,454
Venezuela .....	55
Brazil .....	15,948
Uruguay .....	1,421

## MANUFACTURED INDIA RUBBER AND GUTTA-PERCHA, PURE AND MIXED—continued.

	Pounds.
1890.—Argentine Republic .....	18,253
Chile .....	4,873
Peru .....	2,860
Haiti .....	2,343
St. Thomas .....	761
Spanish America .....	649
Algiers .....	4,037
French Guiana .....	52
Mayotte .....	22
Reunion .....	1,672
French Indo-China .....	3,053
Martinique .....	1,923
Guadeloupe .....	455
<b>Total .....</b>	<b>138,377</b>

## APPLICATIONS ON TISSUES.

Sweden .....	865
England .....	990
Portugal .....	746
Spain .....	565
United States of America .....	3,340
Mexico .....	581
New Granada .....	194
Brazil .....	638
Argentine Republic .....	1,483
Algiers .....	288
Peru .....	308
<b>Total .....</b>	<b>9,998</b>

## ELASTIC TISSUES.

Russia .....	191
Sweden .....	5,504
Norway .....	559
Denmark .....	7,687
Germany .....	41,215
England .....	2,312
Portugal .....	1,082
Spain .....	44
Turkey .....	559
English Africa (East) .....	1,683
Philippines .....	1,146
British India .....	451
China .....	114
Japan .....	1,324
United States of America .....	57,380
Mexico .....	11,911
Guatemala .....	238
New Granada .....	2,946
Venezuela .....	594
Brazil .....	6,604
Uruguay .....	1,485
Argentine Republic .....	5,597
Chile .....	2,266
Peru .....	3,810
Haiti .....	332
St. Thomas .....	2,724
Spanish America .....	2,464
Algiers .....	702
French Indo-China .....	484
Martinique .....	81
<b>Total .....</b>	<b>163,489</b>

## BOOTS AND SHOES.

Portugal .....	988
England .....	304
Spain .....	84
Japan .....	506
Mexico .....	3,729
Brazil .....	284
Argentine Republic .....	4,519
Martinique .....	165
Guadeloupe .....	145
<b>Total .....</b>	<b>10,726</b>

\* From January 1 to September 30.

## LIMOGES.

REPORT BY COMMERCIAL AGENT GRIFFIN.

There is no manufactory of rubber goods, and no rubber articles are sent directly from the United States to this consular district to my knowledge. Thinking that perhaps there might be a trade in American goods, two years ago an American manufacturer at my request sent samples of rubber cloth. These were exhibited to dealers, who pronounced them superior in impermeability to those sent from other countries. The prices are lower, I think, than the same style of English and French goods; the great complaint against these is that they are not waterproof. I would suggest to manufacturers in America desirous of placing their merchandise on the French market that the best way would be to introduce a full line of goods, so that the cheaper qualities could be seen as well as the finer. Let an American have the sole charge of the business; using foreign houses to introduce American goods is always dangerous. Were a full line of American rubber goods properly shown in France, I firmly believe that they would find a ready market.

WALTER T. GRIFFIN,  
*Commercial Agent.*

UNITED STATES COMMERCIAL AGENCY,  
*Limoges, France, December 22, 1890.*

## MARSEILLES.

REPORT BY CONSUL TRAIL.

## CRUDE RUBBER.

Rubber in its crude state was imported from Senegal, Madagascar, Mozambique, Mauritius, Venezuela, Brazil, India, and Australia to the amount of about 400,000 kilos in 1889. More than half this quantity came from the three African sources of supply.

*Importation of crude India rubber (caoutchouc) at Marseilles for the year 1889.*

From—	Kilos.	Value (per kilo).
		<i>Francs.</i>
Senegal .....	100,000	3.00 to 5.50
Madagascar .....	80,000	4.00 to 6.00
Mozambique .....	30,000	4.75 to 5.40
Total .....	210,000	.....

Nearly one-sixth of this rubber importation at Marseilles in 1889 was exported to the United States.

In 1889, of the 400,000 kilos imported, 285,575 kilos were exported in the same crude state, viz: 35,427 kilos to the United States, amounting in value to 230,275 francs, 163,965 kilos to England, 58,460 kilos to Algeria, and the remainder to Germany, Belgium, and Italy.

The only rubber exported from Marseilles to the United States is the crude article. The statistics of the chamber of commerce for 1889 give as the amount exported that year to the United States 35,427 kilos, valued at 230,275 francs. The value of rubber exported to the United States, as given in the invoices passed through the Marseilles consulate for 1889, was 99,907.60 francs, or less than one-half of the total exportation for that year, according to the statistics of the chamber of commerce. The larger part, then, of this rubber was transshipped at Marseilles, but not purchased here.

#### MANUFACTURES.

The importation of rubber manufactures amounted to 54,786 kilos in 1889. Of manufactured articles of rubber, pure or mixed, 1,969 kilos came from the United States, 8,797 kilos from Italy, 7,776 kilos from England, and 2,755 kilos from Switzerland, Germany, and Belgium. Of manufactured articles, rubber on cloth or on other material, there was imported the same year, none from the United States, 4,930 kilos from England, 3,275 kilos from Italy, 997 kilos from China, and 295 kilos from other countries.

Of rubber, or elastic cloth, the importation, same year, was 336 kilos from the United States, 20,623 kilos from Switzerland, 1,603 kilos from England, 471 kilos from Germany, and 1,059 kilos from other countries.

The following price list of a representative manufacturer gives the cost of rubber as regards its use in certain industries in Marseilles:



*Price list of Vve. M. Crausaz, of Marseilles.*

NOTE.—The tubing is usually made in lengths of 10 meters, but for special orders it can be made of any desired length and without joints.

Price per meter.												
Interior diameters in millimeters.	For steam pressure, wrapped with canvas.				Interior diameters in millimeters.	For suction, wrapped with wire.			Interior diameters in millimeters.	For suction, spirale noyée ou nue in- térieure.		
	1 wrap- per.	2 wrap- pers.	3 wrap- pers.	4 wrap- pers.		2 wrap- pers.	3 wrap- pers.	4 wrap- pers.		2 wrap- pers.	3 wrap- pers.	4 wrap- pers.
10	1.10	1.85	2.35	3.00	10	2.40	3.15	3.65	10	3.40	3.95	4.70
12	1.30	2.05	2.75	3.50	12	2.75	3.45	4.00	12	3.75	4.25	5.00
15	1.70	2.45	3.25	4.10	15	3.50	4.45	5.20	15	4.75	5.50	6.20
18	1.85	2.65	3.45	4.35	18	3.80	4.85	5.90	18	5.10	6.20	7.05
20	2.35	3.15	4.20	5.30	20	4.30	5.45	6.70	20	5.50	6.75	8.00
25	2.60	3.40	4.85	5.80	25	4.95	6.50	7.75	25	6.45	7.95	9.00
30	3.00	3.85	5.75	6.75	30	6.00	7.50	9.00	30	7.50	9.00	10.50
35	3.45	4.35	6.65	7.85	35	7.00	8.45	10.50	35	8.90	10.50	12.00
40	3.90	5.10	7.40	9.10	40	8.00	9.80	11.50	40	10.00	12.00	13.50
45	4.45	5.90	8.20	10.20	45	9.00	10.50	12.80	45	11.00	13.50	15.00
50	5.00	6.85	9.00	11.35	50	10.00	12.40	14.40	50	12.40	15.00	16.80
55	5.45	7.30	9.80	12.35	55	11.00	13.50	15.80	55	13.20	16.45	18.50
60	6.00	7.90	10.80	13.40	60	12.00	14.50	17.00	60	15.00	18.00	20.00
70	6.90	9.00	12.75	14.90	70	13.90	16.80	20.25	70	17.45	21.00	23.40
80	7.75	10.50	14.40	16.45	80	16.00	19.30	22.50	80	20.50	25.00	27.90
90	8.60	11.50	15.90	18.40	90	17.50	21.00	24.70	90	24.50	28.50	32.40
100	9.50	12.70	17.50	20.25	100	19.50	23.50	27.50	100	28.50	32.00	37.30
110	10.40	13.90	18.90	22.10	110	22.00	26.00	30.00	110	32.00	35.00	40.50
120	11.40	15.20	20.40	24.15	120	24.00	28.50	33.00	120	35.00	39.00	44.00
130	12.10	16.40	22.00	25.80	130	26.50	32.00	36.00	130	38.00	43.00	47.50
140	13.00	17.65	23.40	27.80	140	28.90	35.00	39.00	140	41.00	47.00	51.50
150	13.80	18.90	24.80	29.90	150	31.00	37.00	43.00	150	44.00	50.00	55.50
160	14.60	20.00	25.90	31.00	160	33.30	39.10	46.10	160	47.10	53.20	59.00
170	15.45	21.10	27.00	32.10	170	35.40	41.20	49.20	170	50.20	56.40	63.10
180	16.10	22.20	28.10	33.20	180	37.50	43.40	52.30	180	53.30	59.60	67.30
190	17.20	23.30	29.20	34.30	190	39.60	45.60	55.40	190	56.40	62.70	71.30
200	18.30	24.40	30.30	35.40	200	41.80	47.90	58.50	200	59.50	65.80	75.40
Tubing for beer pumps and for high pressure, all diameters, 7 frances per kilo.					Special tubing for curves.				Wrapped with wire, 2 frances per kilo.			

## RUBBER TUBING.

For gas, water, air, and liquids without pressure:  
Superior gray of all sizes, 10 francs per kilo.  
Black, ordinary, 8 francs per kilo.

Rubber tubing wrapped with hemp canvas for steam pressure, pumps, hose, distilleries, breweries, etc., and tubing strengthened with spiral wire embedded in the rubber or simply wrapped round the tube for suction, applied to steam, liquids, sewerage, and the drawing off (of wine) from one cask and discharging into another.

One meter of tubing for pressure, with one hemp wrapper with diameter inside of 10 mm., costs 1 franc 10 centimes; with double wrapping, 1 franc 85 centimes; with triple wrapping, 2 francs 35 centimes; with quadruple wrapping, 3 francs; and so on, in proportion to the increasing diameter of the inside of the tube, up to a diameter of 200 mm., or 7.874 inches; when, if the tube has four wrappers, the price per 1 yard 3½ inches, 35 francs 40 centimes, or about \$7.08. For suction tubes the price per meter or 1 yard 3½ inches runs from 48 cents up to \$15.08, as will appear by reference to the price list of Vve M. Crausaz of Marseilles in above table.

Rubber clothing, boots, and shoes are in slight demand in the south of France. Those I found in retail stores bore the mark of a Paris house, but I am informed that these articles are made in England.

I have not been able to discover what the nature of the rubber goods imported from the United States was. The value was only slightly over \$3,000. This information must be obtainable in New York.

Rubber manufacturers desirous of extending their trade into this district should make the effort through the services of some one fully acquainted with the trade and with the language and commercial customs of this country.

The agents at Cette and Toulon report that there was no importation of rubber to those ports from the States, and it is highly improbable that any went to Bastia. There were no rubber exports from those ports to the United States.

CHARLES B. TRAIL,  
Consul.

UNITED STATES CONSULATE,  
Marseilles, November 26, 1890.

#### NICE.

##### REPORT BY CONSUL BRADLEY.

No rubber goods of any description are manufactured in my district, and while the *Ficus elastica* grows in the open air around Nice it does not flourish and is not utilized in any way except for ornament. Rubber goods come to Nice from the following firms in other parts of France:

Hose and tubing—Lerenard, Alfortville.  
Surgical appliances—Gauthey & Haussmaun, 43 rue Greneta, Paris.  
Clothing—Maurel, 140 rue de Rivoli, Paris.  
Sheet rubber—Berguerand, 16 rue des Archives, Paris.  
Industrial articles—Carrillon, Clermont-Ferrand.  
Shoes—Hutchinson, 1 rue d'Hauteville, Paris.  
Mme. Veuve Crozat, Marseilles, furnishes a few things.

The only way to introduce the goods here is by means of active agents. Traveling men from Germany and England come here every year. A man with headquarters at Marseilles could cover all the south of France and north of Spain and Italy. I think the goods could be laid down at Marseilles, and any coast points, by water from New York, at rates comparing favorably with overland rates from England or Germany and as quickly. Expositions of the different lines of goods combined in the larger cities would be of assistance. Small things were apt to be overlooked at the Paris Exposition last year, there was so much to see, but I saw a few articles from there for sale in Marseilles.

WM. HARRISON BRADLEY,  
Consul.

UNITED STATES CONSULATE,  
Nice, November 20, 1890.

## RHEIMS.

REPORT BY CONSUL ANGIER.

So far as I can learn there is in this consular district but one firm (Messrs. E. Lefébure, F. Gougy & Co., of St. Quentin, department of Aisne) engaged in the manufacture of rubber articles. Their manufactures are clothing textures and mechanical goods.

Articles of rubber manufacture, such as rubber clothing, boots and shoes, hose, belting, etc., sold in this district at retail are purchased principally from the rubber manufacturers near Paris. So far as I can learn there are no wholesale or jobbing houses of India-rubber goods in this district.

In view of labor being so much cheaper in this country than in the United States; in view, also, that the manufacturers in France can purchase the crude rubber (on which there is no import duty) as cheaply as the American manufacturers can, I deem it useless to offer any suggestions for the benefit of American rubber manufacturers desirous of extending their trade to this country, for, in view of all the foregoing, I do not believe that the American manufacturers can compete successfully with the French manufacturers of India-rubber goods.

There is nothing further to report from this district touching the manufacture of rubber goods. However, in this connection it may not be out of place for me to mention the works of Messrs. Lufbery & Char-donnier, at Chauny, department of Aisne, in this consular district. This firm has two factories for manufacturing a substitute for rubber, and chemicals expressly for this industry and considerable quantities of their products are sent to the United States, and I am called on frequently to legalize or authenticate the invoices of their shipments to our country.

ALTON ANGIER,  
*Consul.*

UNITED STATES CONSULATE,  
*Rheims, November 4, 1890.*

---

*Roubaix.*—There is neither important manufacture nor trade in rubber goods in this district. The retail merchants who keep rubber apparel in small quantities, usually in conjunction with other goods, obtain their supplies as a rule from Paris; occasionally they buy from England. Rubber in a crude state is imported from England by a few manufacturers, who convert it into rubber sheets and belts, such as are used in and about the machinery employed in the large looms and mills in this district.

There is also an important manufacture of mats and hose.—(W. R. Atwell, Commercial Agent, Roubaix, December 8, 1890.)

## ROUEN.

REPORT BY CONSUL WILLIAMS.

There are no manufactories of India rubber in this consular district, nor any tradesmen who deal exclusively in the article. The sales are such as would be naturally required in a city of this size and its surroundings, divided among a half dozen dealers, who purchase chiefly from French and Belgian manufacturers and are convinced that they can thus obtain their supplies more cheaply than elsewhere. They purchase boots and shoes of India rubber in Boston, as the American manufacture of these articles is superior to any other.

They are costly, pay heavy duty, and are articles of luxury and of very limited sale. I inclose the names of the dealers should interested parties desire to communicate with them:

Boulard (Veuve), No. 28 Jeanne d'Arc street.

Bomdon (G.), No. 19 Quai de la Bourse.

Fauvel, No. 107 Lafayette street.

Vallée, H., No. 4 de la Ferme street.

Welby de Ruffigny, No. 7 Jeanne d'Arc street.

CHARLES P. WILLIAMS,

*Consul.*

ROUEN, FRANCE, *October 22, 1890.*

## SOUTHWEST FRANCE.

REPORT BY CONSUL KNOWLTON, OF BORDEAUX.

The employment of rubber in the vulcanized state is comparatively limited. So little is it used in the districts adjacent to or within the city of Bordeaux, at least, that it has been deemed injudicious to establish factories for its production or to enter into competition with the manufacturers of Great Britain, from which country is derived the principal supply.

Yet in the city of Paris the manufacture of vulcanized rubber appears to be a by no means unimportant industry. From the only available statistics of production at hand I find that as far back as 1867 the consumption in France of crude India rubber amounted to 180,000 pounds, the value of which in a manufactured state was \$15,000,000, an indication that the industry in question was more fully developed in France at that period than in Great Britain.

Although the winter season in the southwestern portion of France is extremely damp and rainy, rubber clothing, mackintoshes, etc., are rarely seen; boots and overshoes of the same material never, except, perhaps, in shop windows. Even in the manufacture from caoutchouc of vulcanized rubber and its collateral products, such as hose pipe, belting, gas and other tubing, the French are seemingly behind the times. Garden hose, for example, is usually made of iron pipe, jointed at dis-

tances of about 6 feet in length and awkwardly supported upon little 2-inch wheels. The same is true of all agricultural implements, mechanical appliances, clothing, etc. Not that it is impossible to obtain in the larger cities any article required of the material in question; it is but necessary to state that in this respect, as in all others, the French are slow to avail themselves of modern advantages and improvements.

Rubber and rubber goods are imported into France chiefly from Great Britain. All articles sold in this particular line are guaranteed to be of English origin. In Bordeaux, at least, only English goods are in demand, while the rubber manufactured in Paris finds its way to this market as an imitation of the British product.

Exportation of the same material from the port of Bordeaux, on the other hand, is either limited or does not exist. It is possible that a very little passes through this center in transportation to the colonies, but but even this is doubtful.

The product is derived chiefly from Africa, the Indies, Brazil, and Para.

The quantity of rubber in its manufactured state imported into France from America is approximately estimated for the year 1889 to amount in value to \$36,000. Duty, 20 to 40 per cent ad valorem.

Preference, as before stated, is given to English goods; afterward to the Parisian. The American article is adjudged a third place on the list. Exactly how just this estimate of quality may be is not for me to decide.

I can scarcely find suggestions to offer for the benefit of American rubber manufacturers desirous of extending their trade in this direction. The retail supply, though comparatively small, is at least in excess of the demand. Vigorous competition and cheaper, though not inferior, goods might, at all events, warrant experiment.

HORACE G. KNOWLES,

*Consul.*

UNITED STATES CONSULATE,

*Bordeaux, December 9, 1890.*

## GERMANY.\*

## AIX-LA-CHAPELLE.

## REPORT BY CONSUL ZEIGLER.

There are no manufactures of goods in this district into which rubber enters as a component part.

There is no duty on crude rubber, but on the various goods into which it enters and forms a part there is a duty of from 3 marks to 130 marks per 100 kilos.

I can find no rubber goods imported from the United States, but was shown ordinary shoes which I was assured were of American make, but upon examination found them stamped "North British Rubber Company, Edinburgh," retail price, say \$1.10, while others were stamped "American India Rubber Company, Saint Petersburg," price, say \$1.35, both kinds being somewhat heavy and clumsy; finding none of the light, fine makes so common in the United States.

Many kinds of rubber goods sold here are made in England, and there is a large manufactory in the adjoining district, at Cologne, whose goods are sold largely throughout Germany and perhaps exported to other countries.

Dealers here generally order such goods from German wholesale houses through traveling agents, and I have been unable to obtain any price lists.

As to the best methods of extending American trade in the direction named, in my opinion the only feasible way would be by samples, relying upon the superior quality, perfection, and desirability of the goods offered, as traders are slow in making changes in lines and makes of any wares which they are accustomed to sell.

As to the extent of importation into this district it is impossible to obtain any reliable data, such information and that of a similar nature being difficult to obtain.

S. B. ZEIGLER,  
Consul.

UNITED STATES CONSULATE,  
*Aix-la-Chapelle, November 8, 1890.*

\*Duties.—Manufactures of India rubber imported into Germany are subject to the following specific duties per 105 kilos (220 pounds):

	Marks.
Crude rubber and gutta-percha, free.	3= \$0. 71
Gutta-percha in threads or strips, not combined with other materials....	40= 9. 52
Rubber shoes and clothing .....	40= 9. 52
Toys in hard or soft rubber (gray) .....	40= 9. 52
All articles in vulcanized rubber or xylonite .....	40= 9. 52
Toys in soft rubber, varnished, colored, or decorated .....	60= 14. 28
Gutta-percha combined with webs of woolen, cotton, or linen .....	90= 21. 42
Elastic webbing and rubber passementerie .....	90= 21. 42
Hose, belting, packing, and wagon covers .....	24= 5. 71

## ANNABERG.

REPORT BY CONSUL HUBBARD.

India-rubber goods are not manufactured in this consular district, and, so far as I can learn, there are no American rubber goods offered for sale here. On a recent occasion a shopkeeper in the city of Annaberg showed me a pair of rubber overshoes which he said were manufactured in America, and the price of them he stated was \$1.75. On examining them I found the Russian eagle stamped on the bottom with other hieroglyphics which plainly indicated they were of Russian origin. They were heavy and clumsy, but not quite up to the German standard in this respect.

In my opinion American rubber goods would not be popular in this consular district, especially American overshoes, for the reason that they are too light in weight. The Saxon people are accustomed to estimate the value of an article by its size and weight.

This idea seems to prevail in regard to agricultural implements and vehicles of all kinds, as well as boots and shoes. Even the locks and keys are of monstrous proportions and nearly as large as the celebrated key of the Bastille, exhibited to visitors at Mount Vernon, Va.

Specific duties are imposed by the German Government upon all manufactures of rubber. The duty varies according to the quality of the goods. The lowest rate is 2.7 cents per pound and the highest 10 cents per pound.

There seems to be nothing prohibitive in these rates, and they alone would not offer any special obstacle to American manufacturers desirous of extending their trade into this district. In order to create a demand for their goods, however, it would be necessary to make them heavier and clumsier than any rubber goods I have ever seen offered for sale in the American market.

DANIEL B. HUBBARD,  
*Consul.*

UNITED STATES CONSULATE,  
*Annaberg, November 13, 1890.*

## BRESLAU.

REPORT BY CONSUL HAYDEN.

India rubber enters into the manufacture of goods used in this district, to wit: Rubber clothing, boots, overshoes, belting, and the like. These are all imported, however, principally from France and England. I have discovered no American importation, and in point of durability, manufacture, and appearance the goods offered for sale here are vastly inferior and at least 40 per cent dearer. In my opinion this district offers to American manufacturers of rubber goods a good market, for

the following reasons: The general superiority of the American article, and the fact that these goods are sold much cheaper in the United States.

JOSEPH EDWARD HAYDEN,  
UNITED STATES CONSULATE, *Consul.*  
*Breslau, March 17, 1891.*

---

### COLOGNE.

#### REPORT BY CONSUL WAMER.

With the exception of toys, combs, shoes, plain and colored balls and fancy goods, all classes of india-rubber goods, chiefly hose, belting, sheeting, matting, and cords, are manufactured in Cologne. I am told that the annual production amounts to about \$300,000 in value.

I am informed that the exportation is not very large, and principally to England and Austria.

Waterproof garments and a limited amount of belting are imported from England. The former goods, however, are not worn to any extent by the Germans here. Rubber shoes are imported pretty extensively here from Russia. In a conversation with a large dealer in this city he informed me that the superiority of the Russian shoes consisted in their elegant fit, and not that they lasted any longer than those made in other countries. Formerly American shoes were imported to a limited extent, but their styles did not suit the taste of the Germans.

I have been unable to find in this district American rubber goods that would be worth while to make mention of.

(18) How are American rubber goods regarded in comparison with those from other countries?

In putting this question to the largest manufacturer of rubber goods in this city, his answer was: American manufactures are known to supply quite as good and quite as bad goods as the manufacturers of other countries, it depending on the demand of the buyers.

I should think that if large manufacturers in the United States would send over intelligent representatives with samples of their special make of goods there might be a chance of introducing and extending their trade in this district. I am informed, however, that the prices are very much depressed in consequence of there being a large production.

WM. D. WAMER,  
UNITED STATES CONSULATE, *Consul.*  
*Cologne, May 23, 1891.*

---

### GREFELD.

#### REPORT BY CONSUL BLAKE.

We have but one warehouse where rubber goods are exclusively sold. This is only a branch store, the main warehouse being in Cologne (about



30 miles distant). A large assortment of rubber goods are for sale, consisting of clothing, boots and shoes, hose, belting and bags, dolls, and various other specialties of rubber manufacture. Rubber clothing in the piece (silk and wool) is imported from England and manufactured into various outside garments; such clothing is in general use, on account of frequent rain in this section. Rubber boots and shoes are in great demand, for the reasons above stated. There is a large demand for rubber hose in sizes from  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches. Belting is not used in this district. Rubber bags, dolls, and other articles are sold in large quantities; earrings, medallions, pins, bracelets, watch chains, brooches, combs, hairpins; fancy things made of corals and metals; standing collars, turned collars, cuffs, different styles for adults and children; cravats in bright and dark colors; collar and cuff buttons with pearl, ivory, and rubber; soap and brushes to clean washing; tourists' satchels, with different kinds of leather in yellow, black, and brown colors, lined with rubber; combs and brushes, bathing tubs, wash basins of rubber, light, and can be folded, pillows in fancy color; waterproof hunting-jackets from 13 marks upwards; knapsack made of brown köper, with rubber lining, waterproof; waterproofs for men and boys from 10 marks up; ladies' waterproofs in silk and wool; pants, hats; rubber shoes, high and low; rubber boots; shoes with rubber soles, used in cycling, gymnasium, and lawn tennis—these goods are exported to Austria, Switzerland, and France, but to what extent I can not state, as the manufactories are not in this district.

Nearly all of the manufactures of rubber are imported from England, except a small percentage coming from America and Holland.

Only rubber shoes are imported from the United States. The amount will not exceed \$5,000 per annum.

The only goods of American manufacture are ladies' and gentlemen's shoes. They are made in better style, and are considered far superior to other goods of the same class manufactured either in England, Germany, or France.

The demand for rubber clothing, boots and shoes, hose, and other articles is universal, not only in this part of Germany, but throughout the whole German Empire. Undoubtedly the style of goods manufactured in America would meet with favor, as such goods can be sold in this market at lower prices than at present obtained. In establishing a depot for the sale of American goods it would be advisable to place some one in charge who thoroughly understands the German language, ways, and customs. I have no doubt large and successful sales could be made by establishing the main warehouse at or near seaport cities, and I am assured that good and satisfactory sales could be made.

EVANS BLAKE,

UNITED STATES CONSULATE,

Consul.

*Orefeld, March 12, 1891.*

## DRESDEN.

REPORT BY CONSUL PALMER.

There is only one small manufactory in this district, where surgical and various small patent articles are made. They are sold almost entirely in Germany and Austria. A price list is herewith inclosed.

The crude rubber obtained is imported in patent plates from Hanover and Manchester and is free of duty. The duty on foreign manufactured rubber is 40 marks per 100 kilos.

German manufactures of rubber have very much improved in the last ten years, so that they practically control the market with the exception of boots and shoes, which are imported from St. Petersburg and from the British Rubber Company, of Edinburgh. The Russian are preferred on account of their felt lining and thickness of rubber.

There are considerable quantities of Russian and English boots and shoes sold here, but there is no means of getting the exact amount consumed.

American goods are so little known and used here that they may practically be considered not in the market.

If properly advertised and exhibited by competent agents a market for boots and shoes probably might be made.

AULICK PALMER,  
Consul.

UNITED STATES CONSULATE,  
Dresden, January 24, 1891.

## DUSSELDORF.

REPORT BY CONSUL PARTELLI.

## RUBBER TREES ARE PLANTS.

The trees and plants under this general name are natives of Mexico, Central America, Brazil, Guiana, Peru, and the East Indies. The Mexican tree belongs to a special class, and the South American trees are known under a variety of names which have been given them by naturalists. The trees which furnish the greater part of the caoutchouc brought from the East Indies are the *Ficus elastica* of Assam, which is considered one of the noblest of trees, and beyond the Ganges are found inexhaustible forests thereof. They have been found at a height of 100 feet and at a circumference of 60 to 75 feet.

The *Castilloa elastica*, the Mexican tree, grows from 50 to 100 feet high, and from 8 to 20 feet in diameter.

The South American tree varies from 25 to upward of 100 feet in height. The most important, however, is that found in the province of Para, south of the equator, in Brazil and which furnishes to commerce immense quantities of caoutchouc, from this source the supply of raw material in Europe being chiefly drawn.

## CRUDE RUBBER.

It is understood that the best rubber used in Germany comes from Para, the product of trees alone; a small quantity, considered of an inferior quality, is received from the East Indies and Africa, and is obtained partly from trees and partly from shrubs.

## MANUFACTURES.

India rubber enters into the manufactures of this district to a small degree only, the industry being more important and carried on to a larger extent in other parts of Germany.

The largest and best known establishment of the kind in Germany is located at Harburg on the Elbe near Hamburg, though at Cologne and some of the more important commercial cities rubber goods are manufactured to a considerable extent.

There is at Mannheim a very important boot and shoe manufactory.

All classes of goods are manufactured, including clothing, boots, shoes, hose, belting, knit and web goods, thread, and technical articles.

The particular classes of goods manufactured within this district are to a limited extent hose and belting, webs, technical articles, and thread.

*Exports.*—About one-half of the rubber goods manufactured in Germany are sold in the country for home consumption; the remainder is exported to foreign markets. The export to Russia was extensive in former years, but since that country increased the rate of duty the exports have fallen off.

The rubber manufactures of Germany find their way into nearly every country in the world.

Shipments to a considerable extent are made into Italy, Spain, and South America, with an important trade in webs and technical articles with England.

*Imports.*—With the exception of thread I do not believe that manufactured goods are imported into Germany to any great extent. A limited quantity of rubber goods are imported into Germany from England, France, and America.

I have made careful inquiry upon the point of rubber importations from the United States and reliable information is difficult to obtain. With the raw material free of duty in Germany, and labor at a much lower rate than in the United States, one would naturally think that rubber goods would be offered at exceedingly low prices in this market, but the contrary is the case. The general run of prices throughout the list are much in advance of those in the United States. We must therefore conclude that clothing, boots, shoes, hose, belting, technical, web, and knit goods are sold at a large profit to the manufacturers and dealers.

Take for example the items gentlemen's rubber shoes and ladies' half shoes. These are sold at prices from 20 to 30 per cent above American rates, and so in like proportion with other articles through the list. In comparison with American goods, in many instances inferior in style and quality, though if not in advance of, at least equal to, American prices.

## AMERICAN RUBBER GOODS.

In my judgment the American rubber goods will in general terms compare favorably in quality with those of any country in the world.

A detailed comparison and description can not be made without reference to and the examination of samples, but while many articles of German manufacture are strong and well made they are lacking in style and finish as compared with American goods.

Considerable feeling exists on the part of German manufacturers and tradesmen against the American policy of protection, and the Germans are not disposed to give aid or comfort either as to information relative to their business or in the introduction of American merchandise.

The introduction of American rubber goods in Germany is therefore simply a matter of business.

If the American goods, which are decidedly better in style and finer in finish, can be placed upon this market for sale at even a slight reduction below German prices, the consumer, ever ready to save a pfennig, will buy them. No encouragement can be expected from those in the trade, and it resolves itself into a question of cost of home production, to which must be added freight, incidental expenses, and German customs duty, the same to be compared with the trade prices in Germany.

If such comparison be favorable to American prices, I am of the opinion that if some of our enterprising merchants, instead of locating an agency with samples, would place upon sale in some one or more of the important cities, say Frankfort, Berlin, Dresden, or Cologne, a large, well-selected stock of American rubber goods, their efforts would in due time be rewarded with success.

Upon further inquiry and the examination of goods offered for sale, I find a considerable quantity, particularly ladies' and gentlemen's shoes, bearing French trade-marks, which would indicate that French goods, on account of superiority in style and finish, were finding their way into this market.

In a conversation had with the leading manufacturer in this district, the remark was made by him: "I do not believe that there is a market here for American rubber goods, as the German manufacturers are sending their goods to almost all civilized countries." But, as stated above, I am of the opinion that if our manufacturers can see their way clear to place the goods in this market at the slightest reduction in price the enterprise will prove successful.

The superiority of the French rubber goods in style and finish over the German having given them a reputation in this market, many of the dealers have resorted to the plan of sending their goods of German manufacture into France, and after having French trade-marks affixed to them they have been returned and sold in Germany as French goods.

D. J. PARTELLO,

*Consul.*

UNITED STATES CONSULATE,

*Dusseldorf, February 18, 1891.*

## FRANKFORT ON THE MAIN.

REPORT OF CONSUL-GENERAL MASON.

## CRUDE RUBBER.

The supply of crude material which is consumed by the rubber goods manufactured in this district is derived in about equal proportions from Africa and from Central and South America. For reasons well known in the commercial world, the price of crude gutta-percha has nearly doubled during the past year, and manufacturers, here as elsewhere, are anxious about the cost and adequacy of future supplies of that important material. It is felt that unless the natural trees in rubber-producing countries can be preserved and made more productive by more judicious and less destructive methods, or replaced by artificial cultivation, the constantly increasing use of rubber goods will make the raw caoutchouc so costly as to revolutionize the commercial aspect of rubber manufacture. It is hoped that the extension of the German colonies in Africa will result in augmenting the supply of caoutchouc from that quarter. Although of inferior quality, as compared with the gutta-percha from Pará, it is still valuable for many purposes and is used largely in the manufactures of this country.

## THE MANUFACTURE AND SALE OF INDIA-RUBBER GOODS.

There are in Frankfort several important dealers in rubber goods, whose assortments comprise everything from hose, belting, and packing to the most delicate toilet articles and surgical fixtures in hard and soft material. One of these houses, the oldest and most extensive, was established when rubber manufactures first became known in general commerce. It has kept pace with all improvements and inventions in rubber manufacture, and, although it has never manufactured on its own account, is now the leading firm of its class in Southern Germany. A glance through its extensive stock will give, therefore, a correct insight into the rubber-goods trade in this vicinity. In answer to the question "what American goods they have in stock," the reply was "only shoes." The more carefully such an assortment is examined the more one is impressed with the extent to which various branches of rubber manufacture, which originated in the United States, have been domesticated in Germany. The import duty upon such merchandise, established by the German tariff laws, gives an opportunity which manufacturers have been prompt to utilize until everything from seamless rubber hose to elastic bands and vulcanized combs are now manufactured in this country, not only for local sale, but for export. In Hanover there is an extensive manufacture of rubber toys. The New York and Hamburg Gummi-Waaren Fabrik at Hamburg is a vigorous and successful enterprise, which combines American methods with German capital and labor under the protection of the German tariff. In the same city the New York Belting and Packing Company has an immense establishment for the manufacture of those articles.

Elsewhere in this country combs, buttons, and all the vast assortment of toilet, surgical, and household articles manufactured of hard or vulcanized rubber under the Goodyear patents are made in quantities sufficient to supply the German market and leave a surplus for export.

But what is perhaps most surprising is the fact that the greater part of the rubber sandals and overshoes sold in this part of Germany are manufactured in St. Petersburg by the Russian-American Rubber Company, which imports its raw material from South America through an import tariff and send its products into Germany through another import tariff (\$10 per 100 kilos) and yet undersells the Scotch, English, and American goods, while it surpasses in quality and elegance the best products of the German manufacturers. In spite of all opposition and two adverse tariffs, the Russian-American Company is steadily gaining control of the trade in Germany. It has an immense depot at Hamburg and has built up an enormous and rapidly increasing trade. It is believed by dealers here who sell the goods of this company that it must receive from the Russian Government some special encouragement, either as bounty on its exported goods or a remission of the duties on the raw material used in their manufacture, perhaps both. However this may be, the essential fact is that their goods now practically dominate the market in Western Germany to the exclusion of German as well as American and English products of the same class.

Another Frankfort dealer has a small factory in the suburban town of Sachsenhausen, where certain kinds of hose and packing are made, but there are in this district only two manufactories of rubber goods sufficiently important to deserve mention in this report. These are the Süddeutschen Gummi-Waaren Fabrik, at Offenbach, a manufacturer town located several miles east of Frankfort, and the Frankfurter Gummi-Waaren Fabrik, at Gelnhausen, about 15 miles beyond Hanau.

The first of these was established in 1881, and manufactures principally four classes of articles, viz, rubber hose, packing, belting, and pencil-erasers, besides a small quantity of certain specialties in which hard and soft rubber are used in combination. This firm uses Brazilian and African caoutchouc in the proportion one-fourth to three-fourths, respectively. The raw material from Pará is purchased mainly in Liverpool, that from Africa comes via Hamburg and Bremen, which have become, through the extension of German colonies in the dark continent, important markets for the crude gutta-percha traffic. The two price lists of the factory at Offenbach, which are submitted as inclosures with this report, will show the scope of their manufacture and the conditions on which their products are offered to the trade.

But by far the most important and comprehensive statement of its class in this district is the Frankfurter Gummi-Waaren Fabrik, which was founded in this city many years ago, and in 1870 was reorganized, capitalized on larger scale, and removed to Gelnhausen, a small town about 30 miles east of Frankfort, where extensive buildings were erected

and the industry established under most favorable conditions. This company manufactures annually goods which are valued at \$200,000 and include the following articles: railway supplies, such as car buffers and cushions, tubing and packing for air brakes, mats for passenger carriages, etc.; ships' materials, steam and water packing, soles for tennis, tourists' and sporting shoes of many kinds, pencil-erasers, elastic bands, and various articles of rubber stationery, tubes, filters, stoppers and other laboratory apparatus, belting and hose in large variety, the latter being made on a cotton web woven by an American process patented and owned by a Boston Woven Hose Company; water-proof mantles, coats, and miners' clothing, besides full line of faucets, valves, and connections in vulcanized rubber. Ordinary sandals and overshoes are not made by this company, its shoes being of leather, canvas, felt, or other materials, with soles of India rubber. Many of these soles are of exceedingly neat and attractive workmanship and have entirely supplanted in local trade the goods of that class which were formerly imported from England. There is in the whole field of German industry nothing which illustrates more forcibly the efficiency of a protective tariff in stimulating and sustaining a new and important branch of production than the rubber manufacture. It is the unanimous testimony of the manufacturers and dealers with whom I have conversed that without protection the rubber industry could not have been successfully established in this country. How successful it has become under the present system will be apparent from the proportion of rubber goods now exported from Germany.

From the most trustworthy statistics that can be obtained it appears that only 40 per cent of the rubber goods manufactured in this district are consumed in Germany. Of the remainder, 5 per cent are exported to Switzerland; 20 per cent to Austria and the Levant; 10 per cent to Australia; 20 per cent to Great Britain and her other colonies, and 5 per cent to Holland.

There are no statistics showing the amount or value of rubber goods imported to this district from the United States. The only records on the subject are those for the whole of Germany, which are available only down to December, 1888. These show that during 1888 Germany imported from the United States 32,000 kilograms of raw caoutchouc, and 49,000 kilograms of rubber goods, against 18,000 kilograms of rubber manufactures, largely toys from the Sonneberg and Hanover districts, which were exported during the same year from Germany to the United States. While it is therefore impossible to classify closely the imports of rubber manufactures from our country to Germany in any specified year, it would appear from the testimony of dealers that they belong mainly under the category of hose, packing, belting, and overshoes of the arctic type, in the production of which American workers are unexcelled.

As has been already indicated, American India rubber goods are con-

sidered equal to the best in the trade. They are usually cheaper than English goods of corresponding grades and superior in quality to the French. Americans have also pushed rubber manufacture into many ingenious specialties which have not hitherto, or at least not until recently, been manufactured in this country. But, as a principle, it may be understood that the German manufacturers are alert and enterprising. If they are not notably ingenious and original, they are clever and zealous copyists. They are well informed, they employ the most improved machinery and methods, and they contest stubbornly every inch of the ground formerly held by the importers of foreign-made rubber goods. The fact that the factories in the district of Frankfort export six-tenths of their entire product to foreign countries will indicate how successfully this industry has been established here.

The only apparent way in which the sale of American rubber goods can be increased in Germany is probably by sending skillful salesmen, with samples of the most modern and highly improved manufactures, to be sold on easy terms and at the lowest practicable prices. Even then the field is not promising. Germany is not looking much for manufactured goods from any foreign country, and least of all from the United States.

FRANK H. MASON,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL.

*Frankfort-on-the-Main, November 14, 1890.*

---

## HAMBURG.

REPORT BY CONSUL JOHNSON.

### IMPORTS OF CRUDE RUBBER.

India rubber is imported into this port, principally from Africa, in large quantities. In 1889 the imports of crude India rubber, on which there is no import duty in Germany, amounted to 6,696,693 pounds, and the average price paid for the same was \$88.87 per 100 kilograms. In 1888 the import amounted to 7,255,559 pounds, and the average price paid was \$91.02 per 100 kilograms. In 1887, 6,039,943 pounds were imported, and the average price was 452.61 marks per 100 kilograms.

### EXPORTS OF RUBBER GOODS.

India rubber enters largely into the manufactures of this district, all classes of rubber goods being produced here. These manufactures are mostly intended for consumption in Germany, but are also exported to a considerable extent. The exports of rubber and rubber manufactures from Hamburg for 1889 were as follows:



*Exports.*

## RUBBER SHOES.

To—	Amount.	To—	Amount.
Chile .....	\$2,597	France .....	\$1,606
British East India .....	2,026	Europe, Turkey .....	1,252
Mexico .....	778	Denmark .....	1,748
Russian Asia .....	528	Other countries .....	2,220
Great Britain .....	261,305		
Sweden .....	42,440		325,820
Norway .....	9,320		

## HARD RUBBER GOODS.

United States .....	\$60,107	Central America .....	\$2,739
Australia .....	24,940	Cape .....	1,054
British East India .....	20,720	Great Britain .....	162,668
Venezuela .....	17,907	Spain .....	32,972
Mexico .....	16,496	Norway .....	17,290
Argentine Republic .....	16,110	Belgium .....	6,837
Brazil .....	14,087	Portugal .....	5,150
Chile .....	10,385	France .....	3,640
British North America .....	8,518	Sweden .....	1,746
Colombia .....	7,563	Denmark .....	678
Philippine Islands .....	4,602	Other countries .....	6,242
Uruguay .....	4,096		
Japan .....	3,505		450,027

## OTHER RUBBER GOODS.

United States .....	\$146,172	British North America .....	\$397
Argentine Republic .....	59,052	Siam .....	821
Japan .....	23,060	Cuba .....	99
Chile .....	19,002	Great Britain .....	414,510
Australia .....	17,255	Spain .....	50,420
Brazil .....	15,782	Norway .....	35,510
Central America .....	11,681	Portugal .....	16,472
Uruguay .....	11,095	Sweden .....	9,884
British East India .....	8,960	Italy .....	5,397
Mexico .....	12,314	Baltic Russia .....	1,970
Venezuela .....	6,514	France .....	1,361
China .....	6,250	Denmark .....	1,242
Peru .....	4,022	Belgium .....	1,187
Singapore .....	3,777	Bremen .....	802
The Cape of Good Hope .....	2,532	Other countries .....	7,282
Colombia .....	1,661		
Philippine Islands .....	1,440		900,327
Ecuador .....	914		

## RUBBER EXPORTS TO THE UNITED STATES.

The exports of raw rubber and rubber goods from this district to the United States for the first nine months of 1890 amounted to the following:

Raw rubber .....	\$42,690.28
African rubber .....	7,628.15
India rubber .....	368,544.24
<b>Total .....</b>	<b>418,862.67</b>
Gum substitute .....	615.39
Old rubber shoes .....	208.93
Dental rubber .....	6,429.61
Gutta percha .....	58,353.22
Rubber goods .....	53,501.43
<b>Grand total .....</b>	<b>538,001.25</b>

## IMPORTS OF RUBBER GOODS.

There were imported in 1889 into Hamburg the following amounts of manufactured rubber goods:

From—	Rubber shoes.		Hard rubber goods.	Other rubber goods.
	Pairs.	Value.		
United States.....	5,746	\$2,528	\$6,843	\$26,480
Great Britain.....	87,667	35,260	6,838	360,194
Belgium.....	1,760	838		
France.....			293	22,258
Portugal.....	2,747	572		595
Russia (Baltic).....	53	29		
Other countries.....	213	158	293	1,062
Total.....	98,186	39,385	14,262	410,589

## AMERICAN RUBBER GOODS.

American rubber goods are looked upon very favorably in this city, but are regarded as rather too high in price. In my opinion the best way to extend the trade of American rubber manufactures in this country would be to establish permanent agencies in this city and the other commercial centers of Germany, providing them with full lines of samples.

This is the way the manufacturers of other countries conduct their business here.

UNITED STATES CONSULATE,  
Hamburg, December 16, 1890.

CHAS. F. JOHNSON,  
Consul.

## MANNHEIM,

## REPORT BY CONSUL WINTER.

India rubber in its crude state is imported into this country from the region of the Amazon in Brazil.

## MANUFACTURES.

The manufacture of India rubber into its various forms of commercial use is assuming large proportions in Mannheim within the last few years.

There are already three or four manufacturing establishments in this consular district, situated in Mannheim and vicinity.

All sorts of soft and hard rubber goods are manufactured in these factories, consisting of cloth, boots and shoes, hose, belting, valves, sheets, packing, tubing, matting, hard rubber for surgical and electrical purposes, toys, combs, elastics, etc.

The amount of India-rubber goods manufactured per year in Mannheim and vicinity will now average in value \$1,000,000. The most of these goods are intended for home consumption.

The export is not very important up to the present time, and goes to England, Italy, Spain, and the Danubian countries.

The United States takes some hard rubber goods for surgical purposes, combs, etc., but to no great extent.

One of the leading manufacturing establishments of India-rubber goods in Mannheim is an American company having a branch manufactory in Paris, France.

I am under obligation to the Mannheimer Gummi Gutta-percha and Asbest Fabrik, of Mannheim, for some facts in connection with the India-rubber industry.

But all these establishments decline to furnish me price lists, assigning reasons that articles manufactured are too various to mention, etc. I have taken occasion to price India-rubber boots and shoes, and find the prices range as follows:

**Men's rubber shoes:**

With indented heels .....	\$0. 75 to \$1. 00
With plain heels .....	. 50 to . 85

**Ladies's rubber shoes:**

With indented heels .....	. 60 to . 75
With plain heels .....	. 50 to . 70

**Children's rubber shoes:**

With indented heels .....	. 40 to . 60
With plain heels .....	. 30 to . 50

Men's India rubber boots ranging in price from \$1.75 to \$3.25.

The style and finish of India-rubber shoes of German manufacture are not so elegant as the best articles of American manufacture, but they are serviceable.

As a rule there is no royal road leading to fortune in the commercial world. Competition is now too great. The same intelligence, industry, and perseverance that is exercised by our successful merchants and manufacturers at home will succeed in extending their trade into wider fields abroad.

That can be done by establishing branch houses and reliable agencies in foreign countries, and by equipping their brightest commercial travelers, who can speak the language of the country to be visited, with samples of their products and price lists, and where connections are established hold them by fidelity and promptness, and by conforming to the peculiar customs of commerce and trade that may obtain in the country where their goods are in demand.

JNO. F. WINTER,  
*Consul.*

UNITED STATES CONSULATE,  
*Mannheim, January 29, 1891.*

## MÜNICH.

REPORT BY CONSUL CATLIN.

It was only a few days ago that I succeeded in obtaining the rather meager information to be found below. The manufacturers and firms here are not disposed to give any information about their business unless they think it will be to their personal advantage to do so.

There are four firms engaged in the manufacture of India-rubber goods in Munich, and besides these there are about two dozen shops or stores in which articles manufactured of rubber are sold. One of these sells only the goods of a Berlin manufacturer.

As to inquiry No. 11 of the circular, I can give no figures in regard to the extent of the goods produced. The character of the goods produced will appear from the following enumeration of the various kinds and descriptions of rubber articles manufactured here, viz:

Air-proof goods, pillows, cushions, water-beds, enameled bottles and enemas, ice-bags, baths, seamless mineralized India-rubber and canvas hose, India-rubber tubing (delivery and suction) for wine, breweries, water, gas, steam and acids, machine belting (supercotton canvas and India rubber) valves, sheet, joints, washers, buffers, springs, steam-packing, hat-pressing bags and rings, gas-bags, bottle-stoppers and washers for bottle-stoppers, cycle and wheel tires, mineralized molded strips for billiard purposes, etc., enameled balls for perfumed sprays, etc.; mats, punched, corrugated, and in various designs, royal aromatic red mineralized bands and rings, ink and pencil erasers, tobacco pouches, water-proof garments and fabrics, bed-sheeting, teats, and feeding-bottles, and the other articles referred to in the price lists sent herewith.

These goods are exported, as I am informed, to all European countries, except Austria-Hungary, England, and Italy, and occasionally to transmarine countries. The extent of the export I am not able to state.

I do not think that foreign manufactures of rubber are used to any considerable extent here, as every variety of the manufactured article is produced by the native manufacturers.

I have not been able to ascertain that any rubber goods imported from the United States are sold here.

F. W. CATLIN,  
*Consul.*

UNITED STATES CONSULATE,  
*Munich, February 14, 1891.*

## NORTH GERMANY.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

India rubber enters into the manufactures of this district to a considerable extent.

The goods manufactured here are hard rubber technical and surgical wares.

Rubber clothing, boots and shoes, hose, belting, and other classes of goods made of rubber, except those above mentioned, are not manufactured here.

The wares manufactured here are exported to all parts of the world.

Price lists of manufacturers are not obtainable.

I am not able to state in detail the extent of the importations of manufactures of rubber in this district.

The statistical statement which accompanies this report will show the total importations of the German Empire for the first half of the year 1890, as compared with the corresponding period of 1889, of raw and manufactured rubber.

England sends to Germany large quantities of technical goods.

Russia sends to Germany large quantities of boots and shoes.

A reference to the statistical statement referred to above will show the extent of the importations from the United States.

I regret to say that I am not able to specify in detail the amount and value of the rubber clothing, boots and shoes imported from the United States.

A large business could be done by the American manufacturers of rubber shoes in Germany, provided the manufacturers would show proper attention to the tastes and long-established customs of the German people.

The wall which constitutes the grand difficulty in the way of almost every American manufacturer in his efforts to reach this market is prejudice.

American manufacturers almost invariably try to persuade every foreign purchaser that each article of wearing apparel, from the waterproof clothing to the overshoe, should have a certain amount of style about it.

What is commonly regarded by the American manufacturer as "style" is with many Germans irreconcilable with usefulness, and it very frequently happens that the foreigners are unjust and unwise enough to regard a certain amount of "style" or finish in such articles as a strategem or trick which is resorted to to dispose of inferior wares.

The prejudice of the North German in favor of the heavy, clumsy boots and shoes which he buys from Russia is quite as strong as that of the American manufacturer in favor of his light, stylish, well-finished boot and shoe.

Russia commands and controls this market in rubber boots and shoes simply because the demands of the North German are about the same in this line as the Russian.

Attention to the tastes of the North Germans is absolutely indispensable to success in this market—in the shoe trade.

American manufacturers pay too much attention to the cut, style, and finish of their products, and too little attention to the foreign prejudice which exists in favor of another class of goods.

If American manufacturers are to secure a fair share of the North German trade in rubber boots and shoes they must try to satisfy not only the tastes of the North Germans but also meet the requirements of the climate of North Germany.

What is, therefore, very urgently wanted by every American manufacturer who desires to enjoy the benefits of the German trade in rubber ware, such as clothing and boots and shoes, is a more definite knowledge of the tastes of these people and the conditions of the climate of this section.

All attempts to build and advance a trade upon any other basis will fail.

UNITED STATES CONSUL-GENERAL,  
*Berlin, December 4, 1890.*

W. H. EDWARDS,  
*Consul-General.*

### GERMAN RUBBER TRADE IN 1890.

[Inclosure in Consul Edwards's report.]

The further we advance in the year 1890 the more interesting become the rubber statistics of different countries, and especially of Germany. In the month of May there was a considerable fall in the export and import both of raw and manufactured rubber, but in June there was a rise in both. The following table shows the figures for June, 1890, and June 1889:

#### *Raw and manufactured rubber and gutta-percha.*

From or to—	Import (kilograms, net).		Export (kilograms, net).	
	June, 1889.	June, 1890.	June, 1889.	June, 1890.
Former free ports .....	1,000	—	6,400	38,500
Belgium .....	2,100	7,000	200	—
France .....	18,100	17,100	—	100
Great Britain .....	173,300	112,800	8,500	19,200
Holland .....	1,800	5,100	800	—
Italy .....	—	—	—	3,500
Norway .....	—	—	600	—
Austria-Hungary .....	1,300	500	900	3,900
Russia .....	1,700	23,000	32,000	20,100
Switzerland .....	300	200	—	100
Spain .....	—	—	200	—
British India .....	20,000	37,600	—	500
Brazil .....	13,400	34,500	—	—
United States .....	1,800	10,800	3,900	24,400
Morocco, etc .....	31,000	33,100	—	—
German West Africa .....	32,500	22,900	—	—
East Africa .....	4,100	—	—	—
Other countries .....	—	20,400	300	100
Total .....	301,400	325,000	53,800	110,400
Increase, 1890 .....	23,600 kilograms.		56,600 kilograms.	

The changes shown by this table are a falling off of the importation from England of 60,500 kilograms, German West Africa 9,600, France 1,000, Austria-Hungary 800, and Switzerland 100 kilograms. On the other hand there was an increase from Russia of 21,300, Brazil 21,100, other countries 20,400, the United States 9,500, British India 17,600, Belgium 4,900, Holland 3,000, Morocco and foreign West Africa 2,100 kilograms. From this it appears that the importation from British India materially increased.

In the export, with the exception of the former free ports, England, Russia, and the United States showed the most increase or decrease. To England it increased 10,700 and to Russia it decreased 11,900. To the United States it increased 20,500 kilograms. The total importation of the first half of 1890 as compared with the corresponding period of 1889 shows a small fall, and the export a slight increase.

*Raw and manufactured rubber and gutta-percha.*

From or to—	Import (Jan. 1 to June 30), kilograms, net.		Export (Jan. 1 to June 30), kilograms, net.	
	1889.	1890.	1889.	1890.
Former free ports .....	78, 100	400	52, 600	56, 700
Belgium .....	14, 600	23, 600	1, 100	9, 900
Denmark .....	200	1, 400		
France .....	118, 800	73, 200	2, 800	5, 000
Great Britain .....	1, 228, 000	919, 100	60, 300	85, 500
Italy .....	200		100	3, 500
Holland .....	51, 000	77, 200	2, 600	4, 600
Norway .....		10, 600	1, 000	
Austria-Hungary .....	13, 000	4, 100	37, 800	23, 200
Roumania .....		4, 800		100
Russia .....	13, 300	65, 400	103, 600	92, 000
Sweden .....	600	2, 600	1, 100	400
Switzerland .....	1, 900	1, 200	400	600
Spain .....		500	800	300
British India .....	72, 700	101, 000	100	500
Argentine Republic .....			300	100
Brazil .....	56, 500	154, 700	100	
United States .....	20, 100	20, 400	65, 800	87, 300
Morocco and West Africa .....		336, 000		
Other countries .....	382, 900	207, 700	1, 100	100
	2, 046, 900	1, 999, 900	340, 400	370, 800
Difference, 1890 .....	— 47, 000 kilograms.		+ 30, 400 kilograms.	

The chief change was a falling off of 308,900 kilograms in the import from England, while the German export to England increased 16,200 kilograms. The other changes can be easily seen from the table.

As compared with 1888 both of the succeeding years showed an increase, the imports in the corresponding period of 1888 amounting to 1,477,300 and the export to 48,600 kilograms.

MANUFACTURE OF AND TRADE IN RUBBER GOODS.

The situation of the rubber ware manufacturing industry improved in the year 1889, as compared with the preceding year, owing to the increased demands of the technical branches which are connected with the rubber branch of trade. The increased competition of the factories, however, did not admit of an improvement in sale prices, as the production was increased in order to keep up with the sales.

The export trade remained practically unchanged, as while Russia and Austria, in consequence of high tariffs, were almost entirely lost, they were replaced by America and Australia. The tendency of the raw rubber market at the end of the year 1889 was steady and encouraging to the hope that the time was not far distant when the factories could make a general rise of prices. England still continues to control the largest portion of the raw rubber import trade. Hamburg and Bremen, it is true, import direct, but are not able to supply the entire German demand and regularly regulate their prices in accordance with English quotations.

It is hoped that the development of the German colonies and the already subsidized steamship line will in time materially increase the direct importation of raw rubber, especially from Africa, the continent of second importance in the production of raw rubber.

## NUREMBURG.

REPORT BY CONSUL BLACK.

India rubber does not enter into the manufactures of this consular district. It is impossible to obtain the exact amount of the yearly importation of manufactures of rubber into the limits of this consulate, as no statistics are given out by the customs authorities here. Their figures are only kept upon loose sheets, which are, at the end of every two weeks, forwarded to the central statistical bureau at Berlin, where they are compiled with those of the whole Empire.

Even if the figures from here were obtainable, they would not indicate the full amount of these wares brought here from foreign countries, for very often articles destined for this city are entered at German sea-ports.

So far as I have been able to learn, sheet rubber and rubber in pieces, which are almost if not entirely the product of the United States, constitute the bulk of the rubber goods imported directly into the city of Nuremberg. The value of these goods brought here the past year may be safely estimated at \$20,000. They are worked up into pencil and ink erasers.

The imports of rubber bands from the United States aggregate no small amount, however, and I am confident that I do not overestimate the value of last year's receipts in declaring that the amount reached \$5,000.

Importation of other rubber goods are insignificant, and I do not think any of them are direct. They are usually purchased from agents of American houses or importing firms in the large cities of North Germany. The field here for this trade is not sufficiently extensive to warrant direct orders. By the retail trade French rubber toys are brought in small quantities, preference being given them over others because of their more attractive finish.

Rubber coats and shoes are, as a rule, of German make. Some few, however, are of English production, and shoes from Russia are also sold to a limited extent. American goods of this character are but seldom seen here.

The feeling largely predominates among the manufacturers with whom I have spoken that the American sheet rubber and rubber in pieces used in making ink and pencil erasers is the best manufactured; that for durability, effectiveness, and quickness in performing its work without destroying the paper it has no equal, and its increased cost over that of the productions of other countries is fully offset by its superior quality.

Rubber shoes of American manufacture appear to have been offered here from time to time for sale by retail dealers. They say, however, that they are too light and do not last as long as the heavy ones of the German and English make; besides that, they are more expensive. I think the last reason is the prime factor in preventing their introduction.



My inquiries lead me to conclude that there is not at the present time any chance of extending our rubber trade in this district.

WM. J. BLACK,  
Consul.

UNITED STATES CONSULATE,  
Nuremberg, December 6, 1890.

### GERMAN RUBBER TARIFF—TRANSLATION.

[Inclosure in Consul Black's report.]

*Extract from the German tariff laws.*

(a) India rubber and gutta-percha, crude or cleaned, hard rubber, also polished or stamped with some design, in sheets, sticks, tubes, etc.....	Free.
	Marks.
(b) India-rubber threads, not in combination with other materials or overspun with cotton, linen, or wool, or raw (unbleached or without dye) yarn in such a way as to make it impossible to distinguish the rubber; dissolved rubber in sheets.....	per 100 kilos.. 3
(c) Coarse goods of soft rubber, unvarnished, without dye; unprinted goods out of hard rubber; all these goods also in combination with other materials; overspun India-rubber strings .....	per 100 kilos.. 40
(d) Fine goods out of soft rubber, varnished, dyed, printed, or impressed with some design; all these goods also in combination with other materials, .....	per 100 kilos.. 60
(e) Textile fabrics of all classes, lined or saturated with India rubber or held together by layers of India rubber, or with inserted India-rubber threads; textiles of India-rubber threads in combination with other spun materials; hosiery and small ware in combination with India-rubber threads, .....	per 100 kilos.. 90
(f) Hose out of hemp, belting for machinery, carriage coverings of coarse materials, in combination with India rubber .....	per 100 kilos.. 24

*Chemnitz.*—No manufactories which produce either hard or soft rubber goods are in existence in this district. A careful search through the records of the local custom-house by the chief customs officer here would indicate that rubber goods are not imported direct into Chemnitz from the United States nor from other countries outside of Germany.

American-made goods stand high in the appreciation of local dealers, but are not handled as extensively as those made in England or Germany on account of the difficulty experienced in getting American goods and a difference in the cost.

If permitted, I would suggest that in order to increase the demand for and consumption of American rubber goods branch houses be established in the principal cities in Europe on the same plan as in America. (H. F. Merritt, consul, Chemnitz, January, 1891.)

## HOLLAND.

REPORT BY CONSUL GARDNER, OF ROTTERDAM.

## CAOUTCHOUC IMPORTS.

Caoutchouc, or India rubber crude, is imported into the Netherlands free. Manufactures of rubber of every description pay a duty of 5 per cent.

The imports during the calendar year 1889 were as follows, crude being reported by quantity, and the manufactured product by its value, of necessity:

Crude rubber from—	Pounds.
Africa, east coast .....	1,364
Africa, west coast .....	1,489,484
Belgium .....	6,019
France .....	36,062
Great Britain .....	630,557
Germany .....	37,776
The East Indies .....	27,188
Portugal .....	217
Total .....	2,228,667

Of this total Netherlands import, 2,145,000 pounds were received at the port of Rotterdam.

## THE EXPORTS OF CAOUTCHOUC.

The exports during the calendar year 1889 were as follows, the quantities in the table below as in the table above being given in pounds avoirdupois, and values in the currency of the United States:

Crude rubber to—	Pounds.
Belgium .....	13,312
Great Britain .....	210,905
Germany .....	213,475
Italy .....	22,715
The East Indies .....	950
Russia .....	299,262
The United States .....	285,932
Total .....	1,046,551

Of this last-named total, 523,600 pounds were shipped from the port of Rotterdam and 486,200 pounds from the port of Amsterdam.

## IMPORTS OF RUBBER GOODS.

Manufactured rubber goods from—	
Belgium .....	\$334.80
Great Britain .....	2,200.80
Germany .....	15,959.20
Russia .....	398.40
Total .....	18,893.20

No manufactures of rubber whatever are exported from the Netherlands.

#### FACTORIES IN THE NETHERLANDS.

There are in the Netherlands only three small establishments for making rubber goods: one each at Haarlem and Amsterdam, in North Holland, and one at Riddersteek, near Rotterdam, in South Holland. Their present total annual consumption of crude material is but 110,000 pounds. Their manufactures are principally belting, hose, and mats. Neither boots nor shoes are made. They produce for home consumption exclusively.

The imports of manufactured rubber into this country, as shown by the second table above, are in great part from Germany; and Hanover, Germany, is the present chief source of supply. So far as I am able to obtain information, no rubber goods are imported by the people of the Netherlands from the United States.

#### THE TRADE IN CRUDE RUBBER.

The Netherlands trade in crude rubber is striking in its extent as compared with the traffic in manufactured stock, solely because here is the home of West Africa trading companies, who make of these Dutch cities primary markets for every description of African goods. The disparity shown above in the amount of crude rubber imported and the amount exported and consumed during the year 1889 furnishes a good illustration of the extent to which Netherland cities are made mere storage depots of vast mercantile supplies. At the present time the amount of crude rubber in this country is large, fully 300,000 pounds being held by dealers in the city of Rotterdam alone.

#### A TRADE TO BE YET DEVELOPED.

Ignorance of the cost of producing rubber goods in the United States and of their market values in the Netherlands precludes any specific suggestion as to methods of extending American trade in this direction. This sea-encompassed country is preëminently the region of copious rains and abundant water. Every description of rubber clothing and rubber boots and shoes would seem to be in demand. What has been already written tends to show, however, that present sales of these articles are hardly more than nominal. If American manufacturers can place their goods in the Netherlands markets at prices to compete with Germany, then a field of trade of large extent is here waiting to be occupied.

#### WASTE IN RUBBER-PRODUCING REGIONS.

Merchants in Rotterdam who are handlers of rubber inform me that in the markets of Europe, not less than in those of the United States, there are apprehensions regarding the wanton waste in rubber-produc-

ing countries. They cite the fact that exports of caoutchouc from Para have increased from less than 5,000 tons in 1870 to more than 15,000 tons in 1888, and are steadily growing; as is also the export trade of the African west and east coast. They also agree that the methods of securing the gum, so far as they are informed, are everywhere needlessly destructive of the trees and plants. Still, despite the multiplying uses to which rubber is put, they do not seriously anticipate any early diminution of supply; the producing regions, they state, being as yet of incalculable extent.

WALTER E. GARDNER,  
*Consul.*

UNITED STATES CONSULATE,  
*Rotterdam, October 22, 1890.*

---

## ITALY.

### ITALIAN DUTIES ON RUBBER.

Crude rubber, free of duty.

Rubber sawn from sheets, or in articles of sawn sheets, duty, 60 lire per 100 kilograms.

Rubber thread, duty, 75 lire per hundred kilograms.

In other stock, including hard caoutchouc but excluding the works of elastic gum mixed with woven goods or metals, duty, 50 lire per 100 kilograms.

In tubes and sheets containing metal thread or metal cloth, duty, 40 lire per 100 kilograms.

Mixed to woven articles of whatever kind except gummed woven cloth and wearing apparel, duty, 60 lire per 100 kilograms.

Worked in laces, ribbons (belts), and elastic woven goods, duty, 140 and 130 lire per 100 kilograms.

Gummed articles, such as wearing and traveling apparel, are subject to the duty of the woven goods.

---

*Catania.*—There is neither production nor manufacture of rubber in my district.

There would seem also to be little benefit to American merchants to try and introduce manufactured rubber in this district, as the demand is very small, rubber goods being but little used.

The total imports for 1889, as below, amounted to only \$1,081.50. (Charles Heath, consul, Catania, December 4, 1890.)

## FLORENCE.

REPORT BY CONSUL DILLER.

No India-rubber goods are imported into this district from the United States.

The quantity of such goods imported from England, France, and Germany is very small, owing to the high rate of duty levied on the finer grades of such goods by the Italian Government. The duty on elastic tissues, bands, ribbons, braids, etc., amounts to \$22.30 per 220.46 pounds.

On articles of clothing, foot-wear, tubes, hose, etc., \$6.18 per 220.46 pounds.

There is no duty on crude rubber and no export duty on the manufactured article.

There are extensive manufactures of rubber goods at Milan, Turin, and Narni, and nearly all such goods found in this market are produced there.

The secretary of finance is empowered in certain cases and under certain clauses and conditions, to grant at his discretion, free entry to certain tissues for the use of Italian manufacturers of rubber goods for their exclusive benefit, to the value of not over 100,000 lire or \$19,300. This privilege, in my opinion, is to secure the best description of samples of such goods manufactured abroad for the use of the army and navy.

I have therefore no suggestions to offer for the benefit of American rubber manufacturers in this district.

ISAAC R. DILLER,

Consul.

UNITED STATES CONSULATE,

Florence, Italy, November 10, 1890.

## GENOA.

REPORT BY CONSUL FLETCHER.

There are no establishments for the manufacture of rubber goods in this consular district.

According to the report of the chamber of commerce for the year 1889, given to the public October 16, 1890, there was exported from Genoa last year 26,271 kilograms of rubber goods, valued at 235,218 lire. This merchandise was undoubtedly manufactured at the large India rubber establishment at Milan and sold abroad through the company's agents located in this city.

The purchasers were—

	Kilos.
Argentine Republic and Chile.....	15, 749
Turkey in Europe.....	3, 707
Egypt.....	70
France.....	3, 977
Spain.....	2, 768
Total.....	26, 271

The report of the chamber of commerce referred to elsewhere gives the importations of crude rubber and rubber goods as follows:

*Importations.*

	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
Crude rubber .....	<i>Kilos.</i> 142,008	<i>Lire.</i> 1,060,000	<i>Kilos.</i> 243,168	<i>Lire.</i> 1,702,176
Manufactured rubber.....	23,012	280,000	21,159	157,486

The above figures show a falling off of 1,853 kilograms in 1889 as compared with 1888, in manufactured goods, and an increase of 101,160 kilos of crude rubber in 1889 over 1888.

Crude rubber was imported in 1889 from—

	<i>Kilos.</i>
England.....	236,736
Germany .....	5,752
British colonies (Asia) .....	680
Total .....	243,168

Manufactured rubber goods were imported in 1889 from—

	<i>Kilos.</i>
Austria .....	907
England .....	5,736
France.....	551
Germany.....	11,215
United States .....	2,750
Total .....	21,159

Out of the 243,168 kilograms of crude rubber brought to this port in 1889, 85 per cent thereof was sent to the large rubber manufacturing establishment at Milan, and the balance to the small factories at Romer and Turin.

Inquiry has failed to discover that comparisons have been made by dealers between rubber goods manufactured in the United States and similar goods from other countries. Dealers buy their wares of the firms who sell cheapest, without regard to the country in which they are manufactured. It is well to state here that rubber boots and shoes are scarcely ever worn by the people in this consular district.

A glance at the figures given above will show that Germany furnished more than one-half of all the rubber goods imported into Genoa last year. This undoubtedly was owing to the fact that representatives of German houses thoroughly canvassed this district in the interest of their employers.

To compete, then, with European houses, American manufacturers should be represented here also, and not only this, but said representatives should also be prepared to sell their wares as cheaply as their European competitors.

I must state that the styles or quality of the rubber goods imported to and exported from Genoa can not be ascertained by any, or in any, published statistics.

By reducing prices and quantity as given elsewhere in this report, the following items are obtained: Imported rubber goods, 7.44 lire per kilogram; exported rubber goods, 8.95 lire per kilogram.

JAMES FLETCHER,

*Consul.*

UNITED STATES CONSULATE,

*Genoa, November 18, 1890.*

---

LEGHORN.

REPORT BY CONSUL RICE.

CAOUTCHOUC AND RUBBER.

The importation of India rubber into this district during the year 1889, worked up into different uses and forms, produced a grand total of 8,681 kilograms, or 19,144 English pounds, from the following places: One thousand kilograms came from Asia, 6,028 from England, 378 from Austria, 995 from France, and 280 from Germany, the whole being valued at \$14,358.43.

MANUFACTURES.

No rubber goods are imported from the United States.

No American rubber goods being imported into this consular district, no comparison can be made.

So many similar requests have been made at this consulate for suggestions to introduce this or that article of American manufacture upon the Leghorn market that I can only offer for the benefit of the American rubber manufacturers the establishment of agencies with samples and prices.

WILLIAM T. RICE,

*Consul.*

UNITED STATES CONSULATE,

*Leghorn, December 1, 1890.*

---

MILAN.

REPORT BY CONSUL PEPPER.

No India rubber is produced in this district. There has been no effort made, as far as I can discover, to cultivate it, and I have been informed by reliable persons that it would not be profitable to try it, as it would not be successful. The questions as to manufactured goods I answer in the following order:

All kinds of India-rubber manufactured goods have been established

in this city for nearly twenty years, but it is only within eight or ten years that they have become extensively known. There is here in Milan a factory which employs 1,400 persons. There are several million francs invested.

This factory supplies more than four-fifths of the demand. The exportations go to Germany, Spain, South America, Roumania, Asia, and Africa. The proprietor of the factory referred to has built a cable from Brindisi to Africa.

Crude rubber is not imported to any extent, but what there is pays no duty.

The importations of manufactures of rubber in our district extends to scarcely one-fifth of the demand; they come from Germany, England, and a small quantity from France, especially boots and shoes, which the manufacturers do not find it profitable to make.

There are no India-rubber goods imported from the United States in consequence of their being superior in quality.

Shoes pay 2 francs each pair duty. Piece goods pay according to the textile—namely, if silk, the duty is correspondent. Gutta percha goods—such as hose, tubes, and similar articles—pay from 40 to 90 francs per 100 kilograms weight.

I believe the opinion is entertained by many that American goods are of a very superior quality.

I do not think it would be best, for reasons stated and suggested in the above replies, for Americans to extend their operations into this part of Italy.

GEO. W. PEPPER,  
Consul.

UNITED STATES CONSULATE,  
Milan, October 29, 1890.

### PALERMO.

#### REPORT BY CONSUL CARROLL.

*Statement showing the quantity and value of India rubber imported into the port of Palermo, together with the countries whence it was imported, during the last five years, beginning January 1, 1885, and ending December 31, 1889.*

[Quantity given in kilograms.]

Whence imported.	1885.		1886.		1887.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Austria.....	2,298	\$4,379.00	978	\$2,476.40	3,570	\$6,019.80
France.....	4,178	11,177.40	3,639	9,847.80	2,217	5,728.40
Germany.....	2,506	5,120.00	776	1,400.00	2,914	5,279.40
Great Britain.....	972	1,506.00	66	240.00	1,503	2,118.80
Holland.....					180	300.00
Switzerland.....						
United States.....					63	101.60
Total.....	9,954	22,182.40	5,459	13,964.20	10,447	19,548.00
Duty collected thereon.....		1,507.20		1,261.00		850.80



# INDIA RUBBER MANUFACTURES AND TRADE.

507

Statement showing the quantity and value of India rubber imported into the port of Palermo, together with the countries whence imported, etc.—Continued.

[Quantity given in kilograms.]

Whence imported.	1888.		1889.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Austria.....	847	\$1,323.40	56	\$78.40	7,749	\$14,277.00
France.....	806	2,122.20	259	420.00	11,069	29,295.80
Germany.....	3,371	8,200.00	1,501	2,803.00	11,068	22,802.40
Great Britain.....	488	683.20			3,029	4,548.00
Holland.....	90	214.00			270	514.00
Switzerland.....	2,743	7,294.60	3,582	9,142.00	6,325	16,436.60
United States.....					63	101.60
Total.....	8,345	19,837.40	5,398	12,443.40	39,603	87,975.40
Duty collected thereon.....		1,666.60		1,425.60		6,720.20

Statement showing the quantity and value of India rubber imported into Palermo, together with the countries whence imported, during the five years from 1885 to 1889, inclusive.

[Quantity given in kilograms.]

Whence imported.	In sawed leaves and sawed objects thereof.		In other forms, comprising hard caoutchouc, exclusive of India rubber works mixed with tissues and metals.		In tubes and leaves containing metallic tissues or wires.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Austria.....	121	\$240.00	4,955	\$7,537.00		
France.....	13	110.00	847	1,185.80		
Germany.....	1,299	3,880.00	5,713	8,996.40		
Great Britain.....	19	80.00	2,910	4,004.00		
Holland.....	16	94.00	254	420.00		
Switzerland.....					171	\$119.00
United States.....			63	101.60		
Total.....	1,468	4,404.00	14,742	22,244.80	171	119.00
Duty collected thereon.....		176.00		505.40		13.60

Whence imported.	Mixed with tissues in works of any material, excepting gum tissues in pieces and cloths.		Worked in lace for liveries, trimmings, etc., in elastic bands and tissues.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Austria.....	409	\$500.00	2,264	\$6,000.00	7,749	\$14,277.00
France.....			10,239	28,000.00	11,069	29,295.80
Germany.....	691	726.00	3,365	9,200.00	11,068	22,802.40
Great Britain.....			100	464.00	3,029	4,548.00
Holland.....					270	514.00
Switzerland.....			6,154	16,317.60	6,325	16,436.60
United States.....					63	101.60
Total.....	1,100	1,226.00	22,122	59,981.60	39,603	87,975.40
Duty collected thereon.....		542.40		5,482.80		6,720.20

PHILIP CARROLL,  
Consul.

UNITED STATES CONSULATE,  
Palermo, December 19, 1890,

## PORTUGAL.

REPORT BY VICE-CONSUL GENERAL WILBOR, OF LISBON.

There is no caoutchouc produced in Portugal. The exports of crude rubber in 1888 were:

Germany .....	\$1,028,620
France .....	60,564
Holland .....	24,700
England .....	407,066
United States .....	215,177

There is no export duty on crude rubber, nor is there rubber manufactured in Portugal.

## IMPORTS.

Crude rubber is free of duty.

There were imported in 1888 of manufactures of caoutchouc \$48,600 worth, of which \$448.20 was direct from the United States.

Duty on importation of manufactured caoutchouc in elastic tissues of silk, \$1.77 a kilogram; other tissues, 89 cents a kilogram; tubing, 21 cents a kilogram; manufactures not specified, 54 cents a kilogram.

American rubber goods are favorably considered, but very dear.

I would suggest a reduction in price and the offering of as advantageous terms of credit as are given by continental and English houses as the best means of building up American trade.

J. B. WILBOR,  
Vice-Consul General.

UNITED STATES CONSULATE-GENERAL  
Lisbon, October 31, 1890.

## RUSSIA.

REPORT BY CONSUL-GENERAL CRAWFORD, OF ST. PETERSBURG.

In obedience to instructions contained in the Department's India-rubber circular of September 20, 1890, I have to report that I have gathered and give below all the data of official character obtainable touching the question. There seems to be great secrecy as to the output of the different factories in Russia as well as in their systems of working.

There are in all three large India-rubber factories in this Empire, namely:

The "Russian-American India-rubber factory" in St. Petersburg, which is undoubtedly the largest of the kind in the world. Its directors and shareholders are all German, and although it does business under the name of Russian-American, yet neither of these countries are represented by any capital in the concern. This factory does an enormous business, but the company refuse any detailed information.

The second factory is that doing business under the name of "Provodnik," situated in Riga. Its directors are Frenchmen. It has a capital of nearly half a million dollars and has been at work about a year and a half. Its output in the first year amounted to about \$500,000 worth of rubber clothing, hose, belting, surgical goods, linoleum, etc. It has lately begun manufacturing rubber shoes, and intends exporting the surplus to Germany and the Scandinavian countries. In former years, in Riga, market was supplied with rubber goods through England and Germany. The "Provodnik" factory was destroyed by fire on November 1, 1890, only the engines, boilers, and the building where linoleum is manufactured remained uninjured. It is said that the latest improvements in the shape of machinery, tools, and buildings will be placed in the new factory which this company is now building, and as the directors are Frenchmen it is most likely that all improvements will be imported from France.

The third factory in this branch of industry is situated in Moscow. Its directors and capital are German, and it is altogether dependent on the factory in St. Petersburg.

The Moscow factory was founded in 1887 with a capital of \$300,000, and it obtains, like the others, most of its raw material from England.

Besides these three factories there are five smaller ones in Moscow, which manufacture exclusively shoe-webbing, in quantities sufficiently large to supply the Moscow and the provincial markets with the article.

By consulting the reports of the ministry of finance for the years 1883, 1886, 1888, and 1889, I have been able to make the following tabulations of imports and exports of India-rubber manufactures in the years above mentioned:

Years.	Exports.		Imports.	
	Tons.	Value.	Tons.	Value.
1883.....		\$215,470	3,030	\$1,501,200
1886.....	402	341,355	.....	100,500
1888.....	655	659,850	153	139,630
1889.....	762	763,680	1,046	637,086

It must be remarked that there were no imports of manufactured rubber goods in 1889, or if there were they were not regarded sufficiently important to be separately classified. The 1,046 tons, representing a value of \$637,086, imported in 1889 are classified under the heading of crude India rubber and caoutchouc in bladders and in liquid state.

Taking the years 1888 and 1889 separately, I find that in 1888—

The value of articles of India rubber and caoutchouc, with admixture of other materials, imported into Russia, amounted to.....	\$117,752
Articles with admixture of other materials .....	20,265
Rubber clothing and hose .....	1,513
Rubber shoes.....	100
Total .....	139,632

The summary of rubber goods exported from Russia in 1888 was as follows:

Rubber shoes .....	\$581, 200
Various manufactures .....	78, 650
Total .....	659, 850

In 1889 the imports were classified as follows:

Frontiers through which the goods were imported.	Quantity.	Countries which supplied Russia with crude India rubber.	Quantity.
	<i>Pounds.</i>		<i>Pounds.</i>
Baltic ports .....	2, 032, 702	England .....	1, 022, 974
Russian-Prussian .....	47, 520	Germany .....	604, 368
Russian-Austrian .....	2, 520	Portugal .....	389, 612
Ports of the Black Sea .....	7, 848	Holland .....	91, 152
Azoff Sea .....	36	Austria-Hungary .....	2, 520
Total .....	2, 090, 626	Total .....	2, 090, 626
Value .....	\$637, 086	Value .....	\$637, 086

The exports from Russia in 1889 were composed of rubber shoes, which were exported to Europe through the following frontiers and in the quantities shown below:

	<i>Pounds.</i>
Baltic ports .....	560, 664
Russian-Prussian frontier .....	160, 848
Russian-Austrian frontier .....	396
Roumanian frontier .....	5, 328
From the Black Sea .....	48, 924
	776, 160
Exported to Finland .....	695, 412
Exported to Asia .....	216
Total .....	1, 471, 788

which were valued at \$735,558. These goods were sent to the following countries:

	<i>Pounds.</i>
Germany .....	641, 124
Belgium .....	43, 560
Denmark .....	34, 956
Bulgaria .....	32, 256
Turkey .....	12, 816
Roumania .....	8, 425

The amount of India-rubber manufactures sent to Europe in 1889, besides rubber shoes, was as follows:

	<i>Pounds.</i>
From the Baltic frontiers .....	576
From the Russian-Prussian .....	21, 996
From the Russian-Austrian .....	3, 096
From the Black Sea .....	2, 952
	28, 620
To Finland .....	23, 544
To Asia .....	648
Total .....	52, 812

The value of the manufactured goods exported amount to \$27,822, and together with that of rubber shoes showed the total rubber exports to be \$763,680.

It will be seen from the above tables that the imports have greatly decreased and that the rubber factories in the Russian Empire are on such a large scale that not only have they been able to supply the home demand, but have succeeded in a very short time in exporting the amount of rubber goods which Russia had imported in the previous years.

It will further be seen that the custom-house department did not specify separately the amount of raw material imported from that of manufactured goods until the year 1889. In that year the London market supplied about half the amount of crude material required by the Russian factories.

Most of the manufactured goods exported from Russia, rubber shoes especially, are sent to Germany, the remainder being shipped to Norway, Sweden, and to Roumania. Austria having a factory of its own, imports very little from Russia.

The "Russian-American India Rubber Factory," of St. Petersburg, makes a very high order of goods. The ordinary American rubber goods are not considered superior to those of Russian manufacture, and the high import duty renders it extremely difficult for foreign manufacturers to sell their goods in this Empire. However, the rubber cloths of foreign make are still imported, as that art is not understood by the local manufacturers.

Below will be found a list of duties on crude India rubber and its manufactures:

India rubber in its crude state, per 36 lbs.....	\$0.20
Goods manufactured of India rubber, without the admixture of other materials, per 36 lbs .....	2.25
Goods manufactured of India rubber, with the admixture of other materials, per 36 lbs.....	4.07
India rubber clothing and hose, per 36 lbs .....	14.93
Rubber boots or shoes, with or without admixture of cloth or leather, per 36 lbs.....	6.79

It will be seen on examining this report that, although this industry is in its infancy in Russia, it is destined soon to take rank with that of other countries.

J. M. CRAWFORD.

UNITED STATES CONSULATE-GENERAL,

*St. Petersburg, March 9, 1891.*

## POLAND.

REPORT BY CONSUL RAWICZ, OF WARSAW.

There exists no manufacture of goods made of these materials either at Warsaw or in the Kingdom of Poland, and in consequence of this caoutchouc or India rubber in a raw state is not imported. Most of the rubber goods which are sold in the shops here, as, for instance, galoshes, being here in great use, as well as all other rubber goods, are brought to Warsaw from St. Petersburg and from Riga, being manufactured in those cities. Imports in that branch from abroad to this country are quite insignificant, and consist in small fancy articles.

JOSEPH RAWICZ,  
Consul.

UNITED STATES CONSULATE,  
Warsaw, October 8, 1890.

## SPAIN.

*Spanish duties on rubber.*—The following duties are those that are applicable to such goods as are imported into Spain from countries that are entitled to the advantage of the so-called "favored nation clause," the duties for other countries being from 20 to 25 per cent higher:\*

Crude rubber, 3 pesetas per 100 kilos.  
Rubber sheet,  $\frac{1}{2}$  peseta per kilo.  
Tubing,  $\frac{1}{2}$  peseta per kilo.  
Articles made from sheet,  $1\frac{1}{2}$  pesetas per kilo.  
Valves formachinery,  $1\frac{1}{10}$  peseta per kilo.  
Rubber cloth,  $2\frac{1}{2}$  pesetas per kilo.  
Rubber cloth made up,  $2\frac{1}{2}$  pesetas per kilo, plus 30 per cent.  
Average rubber coat, 6 pesetas.

Rubber shoes,  $1\frac{1}{2}$  pesetas per kilo.  
Rubber shoes with leather soles,  $5\frac{1}{10}$  pesetas per kilo.  
Rubber bands,  $1\frac{1}{2}$  pesetas per kilo.  
Celluloid collars and cuffs,  $1\frac{1}{10}$  pesetas per kilo.  
Toys,  $1\frac{3}{10}$  pesetas per kilo.  
Apparatus proved to be for benefit of Spanish industries, 8 pesetas per 100 kilos.

## ANDALUSIA.

REPORT BY CONSUL TURNER, OF CADIZ.

I am unable to contribute much information in response to the rubber circular.

*Imports.*—The total amount imported into Spain for the nine months ended October 1, 1889, was 77,385 kilos, valued at 1,083,398 pesetas, for the same period of 1890 63,241 kilos, valued at 906,052 pesetas.

I am unable to state what part of it was raw material, but am sure that the greater part was in manufactured goods.

\* One peseta is equal to 19.3 cents; 1 kilogram, 2.2205 pounds; one meter, 1.094 yards.

I have not seen a rubber boot or overshoe in Andalusia, but the introduction of India-rubber wraps is well under way.

American rubber goods are not known here as such, all imports being made from England, France, and Germany. In investigating this subject I addressed letters to a large number of merchants of this city and Seville. The answers received are of the same tenor, so I content myself with inclosing but one, together with its translation. I also inclose a report from Consular Agent Catlin, of Huelva. I am sure that business could be done here if the American rubber manufacturers would send over men to work it up. It will not come unsolicited nor by the use of circulars published in a foreign language.

Andalusia is almost destitute of manufacturing industries, yet we sell her but a few manufactured articles, and chiefly, in my opinion, because we are not represented by agents and because communication between the two countries is almost entirely indirect. So far as I can learn there has been no attempt made in this district to cultivate rubber-producing plants of any kind.

Mr. Viniegra, the writer of the following communication, is one of the largest dry goods and general furnishing dealers in this province.

A few of the other merchants that replied to my queries named France as the country from which they bought their goods. But all, like the one quoted, knew nothing of the American production of any class of rubber goods.

R. W. TURNER,  
*Consul.*

UNITED STATES CONSULATE,  
*Cadiz, November 29, 1890.*

*Mr. Viniegra to Consul Turner.*

*CADIZ, November 4, 1890.*

MY DEAR SIR: I answer with pleasure your note of 1st instant, arranging my answers as you indicated, and confining myself to the only article that I sell, namely, "water-proof wraps:"

First. I sell gentlemen's and ladies' India-rubber water-proof wraps.

Second. The sale of these articles is increasing.

Third. I buy them only in Germany and England of two important commission houses, one in Hamburg and the other in Manchester. They deal in rubber goods on a grand scale and conditions.

Fourth. I am unacquainted with American rubber goods, and do not know how they compare with those of other countries.

Fifth. American articles would be acceptable in Spain if the English, German, and French styles of goods were followed.

Sixth. I can not give you a list of the rubber goods sold in Andalusia.

Seventh. I know of no manufactory of rubber goods in Spain.

Eighth. If the Americans, bearing in mind our customs duties, would compete for our trade, I think they could easily secure it, for the American articles sold in Spain are greatly liked; at least, this is true of the few that are sold in this city. This is all the information I can give.

Truly your obedient servant, etc.

D. VINIEGRA.

## HUELVA.

## REPORT BY CONSULAR AGENT CATLIN.

There is no rubber produced, nor are there any manufactures of rubber in this district.

The quantity of manufactures of this article imported was, in the twelve months from July, 1889, to June, 1890, 5½ tons, of the declared value of \$1,120, and consisted almost exclusively of sheets and tubing and other forms for machinery and mining. The weight in coats and articles of clothing would not be more than a few hundred-weight.

All the manufactures of rubber imported were from England and declared as of British origin, and I have no means of ascertaining whether any of them came originally from the United States.

JNO. R. CATLIN,  
*Consular Agent.*

UNITED STATES CONSULAR AGENCY,  
*Huelva, November 5, 1890.*

## BARCELONA.

## REPORT BY CONSUL BOWEN.

Caoutchouc or India rubber is not a product of Catalonia nor of any other part of Spain. Segregated specimens of the Brazilian caoutchouc tree, which belongs to the order euphorbiaceæ, are to be found in some of the public parks in Spain; but no effort has been made to treat it otherwise than as an ornamental exotic. The importations of rubber into Spain amount to about \$125,000 a year, and of that amount \$50,000 is the quota paid by this province of Catalonia, of which Barcelona is the capital. The raw material is imported from France and Belgium chiefly, and I might say exclusively, for the amount that comes from England is very insignificant. The manufactured goods, on the other hand, are principally English, although France, Germany, Italy, and the United also are bidding for Spanish favor. Two years ago there were no importations of rubber from the United States; but about fifteen months ago an invoice of waterproof clothing and of rubber boots and shoes was sent to Barcelona from Boston, the city in which Thomas C. Wales in 1825 conceived the idea of converting the Para overshoe as made by the Indians in Brazil into a rubber shoe of serviceable size and graceful shape, and in which rubber shoes are now made that at present are unrivaled in Spanish markets. During the last year \$5,000 worth of these shoes have been sold in this province, and the demand for them is steadily increasing. The waterproof clothing, however, proved unsatisfactory as compared with that of English make, and the demand for it consequently failed. In Barcelona, which supplies all the rest of Catalonia with crude and manufactured rubber, there are but five firms that are manufacturers of rubber, and even they produce only tubing and plain sheets, which, however, they put into the market at prices that practically forbid foreign competition. The machinery



employed by these firms is too antiquated to produce fancy articles that would compare favorably with those of foreign make, and therefore nearly all of the fancy goods are imported.

The inhabitants of Barcelona, who number 272,000, consume about one-half of all the rubber consumed in Catalonia, and substantially all of the fancy goods. The other cities, the towns, and the rural districts of Catalonia during the last year have sent comparatively large orders for rubber garments, and it is expected that their orders for the coming year will exceed, by far, the demand for the same articles by the people of Barcelona.

All of the five houses in Barcelona that are engaged in manufacturing rubber sell at wholesale and retail, but at prices that vary according to the quantity sold. In the most important house the prices stated are these:

	Pesetas.		Pesetas.
Sheeting.....per kilo..	6.25 to 15.00	Straps.....per kilo..	12.00 to 16.00
Valves formachines.do....	8.75 to 15.00	Bed sheetings.....each..	9.00 to 10.00
Patent packing.....do....	7.50 to 10.00	Rings for pistons.per kilo..	10.00 to 12.50
Elastic cord.....do....	8.75 to 11.25	Gray, box rings.....do....	32.50 to 35.00
Cloth inlaid with rubber.....per kilo..	6.00 to 8.75	Rings for pipings.....do....	11.25 to 15.00
Rubber rings.....do....	7.50 to 11.25	Tubes.....do....	.75 to 15.00
Corks (conical and cylindrical).....per kilo..	13.00 to 15.00	Hose.....do....	6.25 to 8.75
		Billiard bands.....do....	14.00 to 16.00
		Rubber cloth..per meter..	1.25 to 4.95

In addition to the five firms referred to, the firm of Charles Macintosh & Co., limited, of Manchester, is represented in Barcelona, and also in Madrid, Bilbao, Seville, Valladolid, Malaga, Pamplona, Vitoria, Saragossa, Santander, and Oviedo. As a rule, this firm's wholesale prices are a little higher than those of the Spanish firms, and the reason therefor is, that it delivers its goods free of charges, and also because the goods have an established and enviable reputation. To the trade it makes a discount of 25 per cent. In its retail shop in Barcelona the price-list for boots and shoes is the following, and all of the boots and shoes were manufactured in Boston.

	Pesetas.		Pesetas.
Ladies' Cape May.....per pair..	4.50	Boy's plain self-acting...per pair..	5.00
Florence.....do....	4.00	Men's dull friction hip.....do....	35.40
Empress.....do....	18.00	Bright wool hip.....do....	35.75
Woman's foothold.....do....	3.35	Woman croquet.....do....	3.60
Men's footholds.....do....	5.25	Misses' croquet.....do....	2.80
Dull friction thigh.....do....	38.00	Woman's imitation self-acting, per pair.....	4.30
Storm king.....do....	33.50	Woman's wool boots...per pair..	14.45
Pebble short light.....do....	29.00	Misses' cotton boots.....do....	11.25
Men's plain Oxford.....do....	7.00	Child's cotton boots.....do....	9.50
Hub Arctics.....do....	13.00	Misses' wool boots.....do....	12.20
Women's light buckle Arctic.do....	10.50	Men's dull friction knee....do....	26.20
Whole vamp foothold.....do....	3.35		
Child Broadway springheel.do....	2.75		

The garments sold here by the Macintosh Company are made up from cloth imported from Manchester. The prices for overcoats for men range from 31 to 84 pesetas; for cloaks for women, from 36 to 82 pesetas; and for cloaks for children, from 23 to 60 pesetas. The price of the cloth itself ranges from 5 to 16½ pesetas per meter.

There are no exportations of rubber from Spain except to her colonies.

In view of the foregoing facts and figures and of conversations that I have had with some of the men of this city that are engaged in the rubber business, I am convinced that the importation of fancy goods, shoes, boots, and clothing from the United States can be greatly increased in this district. In the southern districts of Spain, on the other hand, the trade in rubber must always be comparatively small, because of the climate, which is such as to render rubber garments and shoes not only almost unnecessary but also almost insufferable. Even in the north of Spain the climate is not as favorable to rubber men as it might be. Still there is sufficient rain during the autumn and winter to make a rubber outfit a valuable acquisition to one's wardrobe. But an exporter to Spain from the United States must necessarily expect sharp competition in all garments and fancy goods. Compared with other foreign exporters he is at a disadvantage in two respects, and those are distance and lack of direct communication with the ports of Spain. But even if he can afford to compete in Spanish markets, he will still find himself at a disadvantage, unless he delivers his goods free of charges, or unless he deals with his agent here directly. Spaniards dislike exchanges, costs, and duties, and will buy inferior goods that bring him no trouble rather than superior goods that cause him vexation; and Spanish agents take far less interest in pushing goods if they are dealt with through agents in London and Paris, and divide with them their commissions. In other words, if the American exporter uses tact and is duly considerate, his goods will be accepted with greater favor and sold with greater favor.

HERBERT W. BOWEN,

UNITED STATES CONSULATE,

*Consul.*

*Barcelona, October 22, 1890.*

---

## SWITZERLAND.

BASLE.

REPORT BY CONSUL GIFFORD.

MANUFACTURE.

In this consular district, as well as in Switzerland in general, the manufacture of rubber goods is almost wholly confined to tissues designed for shoe elastics. The extent of this industry is relatively considerable, there being seven factories in operation, all but one of which are situated in this district.

The greater part of the product of these manufactories is exported, as well as that of the seventh factory in Schaffhausen. The approximate value of these goods will be indicated by the following table of exports:

## EXPORTS.

*Table showing export from Switzerland of all kinds of rubber tissues in combination with wool, cotton, silk, etc., during the year 1889.*

To what country exported.	Weight in metric centners.	Value.
France .....	387	\$101,600
Spain .....	347	88,500
Germany .....	224	58,200
Austria .....	165	43,800
Danubian countries .....	138	31,600
Argentine Republic .....	94	24,500
Italy .....	92	21,500
Other countries .....	428	113,000
Total .....	1,875	483,300

## DUTY.

The crude rubber introduced into Switzerland is subject to a duty of 4 francs (77 cents) per metric quintal (220 pounds).

## IMPORTS.

During the year 1889 rubber goods were imported into Switzerland as follows:

Kind of goods.	From what country imported.	Weight in metrics.	Value.
		<i>Quintals.</i>	
India rubber and gutta-percha in hose and pipes .....	Germany .....	399	\$55,800
	Other countries .....	62	8,800
Boots, shoes, and other goods of pure rubber and gutta-percha. ....	Germany .....	261	47,000
	England .....	160	28,800
	Other countries .....	74	13,400
Elastic tissues of all kinds, in composition with cotton, wool, silk, etc. ....	Germany .....	77	20,000
	France .....	28	7,200
	England .....	22	5,800
	Other countries .....	10	2,600
Boots and shoes of all kinds in composition with other materials. ....	.....	65	11,800
Total .....	.....	1,168	201,200

## IMPORTS FROM THE UNITED STATES.

Such rubber goods as reach Switzerland from the United States are for the most part introduced from Germany, and are not separately noted in the official statistics. American firms have established branch houses in Hamburg, whence rubber shoes, belting, hose, and packing material are shipped to Switzerland. The exact amount of these imports is not to be determined from published statistics, the greater part of the same being no doubt embraced in the sum of imports accorded to Germany.

## DUTY ON RUBBER MANUFACTURES.

Manufactures of rubber imported into Switzerland are dutiable as follows:

Rubber applied upon tissues or other material, boots, shoes, and other articles not especially mentioned, not in combination with other material, 17 francs per metric quintal.

Elastic tissues of rubber in combination with cotton, wool, silk, etc., 40 francs per metric quintal.

Boots and shoes of rubber in combination with other material, 30 francs per metric quintal.

## REPUTATION OF AMERICAN GOODS.

According to the statement of local dealers rubber clothing and shoes are obtained chiefly from England, the quality of these English goods being, it is stated, superior to that of the corresponding American articles. This preference is alleged to exist notwithstanding the fact that the American goods can be sold cheaper than the English. Rubber overshoes manufactured by an American-Russian house in St. Petersburg enjoy a good repute and find ready sale.

## POSSIBILITY OF INCREASING AMERICAN BUSINESS.

Dealers in rubber manufactures and other persons acquainted with the subject are of the opinion that the direct importation of American goods, especially overshoes and packing material, might be somewhat increased, though the business is now chiefly in the hands of foreign manufacturers. For the former article it would be indispensable that the quality of the article should be superior. But it should be remarked that the use of overshoes in Switzerland is by no means so common as in the United States, and that the demand for them is accordingly small. Technical and scientific articles would hardly find a ready market here, on account of the inevitable delay in their delivery.

GEORGE GIFFORD,  
*Consul.*

UNITED STATES CONSULATE,  
*Basle, October 29, 1890.*

---

ST. GALL.

REPORT BY CONSUL ROBERTSON.

## IMPORTS OF RUBBER GOODS.

The extent of the importation of manufactures of rubber into this district ranges, as nearly as can be ascertained, from 250,000 to 300,000 francs per annum. The leading country of origin is Germany, with far smaller amounts from France, England, and the United States, in the order named.

*Imports into Switzerland in the year 1889.*

Quantity.	Value.	From the United States.	
		Quantity.	Value.
<i>Quintals.</i>	<i>Francs.</i>	<i>Quintals.</i>	<i>Francs.</i>
51	40,800	.....	.....
379	492,700	14	18,200
522	365,400	.....	.....
238	208,250	.....	.....
461	322,700	}	12 10,600
495	445,500		
137	178,100		
65	58,500	.....	.....
2,348	2,111,950	26	28,800

There are actually no rubber goods imported directly from the United States into my district, and but a small quantity, as has just been shown, into all Switzerland. In former times, say 20 years, so I am informed, American rubber belting was used here in respectable quantity; but this was supplanted by leather belting, which had become more popular because of its proving stronger, of greater resistance, and less affected by fluctuations of temperature.

Rubber tubing, clothes, boots, shoes, mats, etc., are sold here, but the demand therefor being limited, most dealers of my district are accustomed to order supplies of these articles from or through importers at Basle, Berne, and Zurich.

Mr. G. L. Tobler, of St. Gallen, is, to my knowledge, the only importing house here.

The Swiss rates of duty upon rubber imports are as follows, per 100 kilos:

	General tariff.	Special tariff.	Tariff number.
Rubber, pure or mixed, raw, cut, drawn, in heads.....	<i>Francs.</i> 4	<i>Francs.</i> 7	348

As far as concerns quality, American rubber goods are considered fully on a level with those of other countries, and would, doubtless, be much more largely used were our factories geographically as near to Switzerland as are those of Germany and France.

The chief obstacles to the introduction of our manufactures of rubber here are the limited consumption of such articles, the length of time necessary to await the fulfillment of an order given, and the higher freight rates, as compared with those of adjacent countries.

From climatic causes, the goods do not keep well when stored, and hence are only ordered in quantities to suit the actual demand at the time.

The ability of Germany, from her position, to quickly deliver these goods, and at very moderate transportation charges, even on small ship-

ments, give her a large advantage at the outset toward securing and retaining the market of Switzerland for her rubber goods.

For reasons above set forth, the only means by which American rubber manufacturers can extend their trade into this district is that of lower prices, or by making goods of such a quality that they would be in the end cheaper than such as cost, perhaps, less to purchase, but which fall far short of giving the same satisfaction.

The encouragement held out is, I think, not great for a larger increase in the consumption of our rubber products.

As direct orders would scarcely be obtainable, trials could only be made by consignments, for which such places as Geneva, Basle, or Zurich would be the most suitable points.

W. HENRY ROBERTSON,  
*Consul.*

UNITED STATES CONSULATE,  
*St. Gallen, November 1, 1890.*

## ZURICH.

### REPORT BY CONSUL BATLIN.

India rubber enters but little into the manufactures of this consular district. There is one small factory near Zurich employing a few workmen, and devoted to the manufacture of the smaller classes of rubber goods, but none of the more important articles of the trade, such as rubber clothing, boots, shoes, or belting, are made in this vicinity.

The manufacture of elastic webbing is the only branch of the India-rubber business extensively carried on in Switzerland. The exports in this line amounted last year to 2,411,911 francs. The raw material, India-rubber thread, was imported to the amount of 492,700 francs. Of the product resulting therefrom in elastic webbing, a portion went to supply the home consumption, and the remainder, to the amount above stated, was exported elsewhere.

Under the proposed new tariff, now under consideration by the federal authorities at Berne, India rubber, raw and manufactured, figures as follows, viz:

	Francs.
Caoutchouc and gutta-percha, pure or mixed, raw, cut, drawn, in balls, plates, sheets, bands, threads.....per 100 kilos..	1
Carding cloths .....	4
Caoutchouc and gutta-percha in hose tubes, also in connection with other materials .....	10
Caoutchouc and gutta-percha on tissues or other stuffs, elastic tissues of all kinds made of caoutchouc in connection with cotton, wool, silk, etc., and other goods of caoutchouc and gutta-percha not here named...per 100 kilos..	40

The following tables, compiled from federal statistics, show the extent of importation and exportation of rubber, raw and manufactured, into

and from Switzerland during the year 1889, together with the respective countries of origin and destination, viz:

	Imports.	Exports.		Imports.	Exports.
	<i>Francs.</i>	<i>Francs.</i>		<i>Francs.</i>	<i>Francs.</i>
<b>I. India rubber, raw:</b>			<b>VI. India-rubber textiles, etc.—Continued.</b>		
Germany.....	22,400	794	Holland.....	6,300	200
France.....	15,200	5,510	Elsewhere.....		815
Belgium.....	1,600		<b>Total.....</b>	<b>445,500</b>	<b>9,209</b>
Austria.....	800	370			
England.....	800	900	<b>VII. India-rubber shoes, sewed:</b>		
Italy.....		890	Germany.....	19,800	812
Egypt.....		30	England.....	28,800	
<b>Total.....</b>	<b>40,800</b>	<b>8,494</b>	France.....	9,000	104
			Austria.....	900	100
<b>II. India-rubber thread:</b>			Italy.....		60
Germany.....	106,600	116	<b>Total.....</b>	<b>58,500</b>	<b>1,076</b>
France.....	5,200	2,600			
Italy.....	1,300	8	<b>VIII. Elastic webs of all sorts (chiefly for shoes):</b>		
England.....	361,400		Germany.....	160,100	291,513
United States.....	18,200		Austria.....	6,500	218,580
Turkey.....		55	France.....	36,400	503,092
<b>Total.....</b>	<b>492,700</b>	<b>2,779</b>	Italy.....	5,200	107,201
			Belgium.....	1,300	81,972
<b>III. Card cloth:</b>			Holland.....		584
England.....	203,875		England.....	28,600	48,460
Germany.....	4,375	2,000	Sweden.....		3,280
Austria.....		25	Denmark.....		1,975
<b>Total.....</b>	<b>208,250</b>	<b>2,025</b>	Portugal.....		12,788
			Spain.....		443,313
<b>IV. India-rubber sheets, belt ing, valves, etc.:</b>			Greece.....		1,810
Germany.....	273,700	9,211	Danube countries.....		157,684
England.....	46,900	515	Turkey in Europe.....		43,610
France.....	36,400	679	Egypt.....		36,175
Austria.....	700	1,102	Algiers.....		8,861
Italy.....	4,200	6,651	Turkey in Asia.....		70,144
Belgium.....	2,800	200	British India.....		3,600
Holland.....	700	60	Dutch India.....		3,140
Elsewhere.....		45	Eastern Asia.....		15,510
<b>Total.....</b>	<b>365,400</b>	<b>18,463</b>	United States.....		67,606
			Central America.....		48,590
<b>V. India-rubber hose:</b>			Chile.....		10,420
Germany.....	279,300	4,503	Brazil.....		102,830
England.....	8,400	720	Argentine Republic.....		122,070
France.....	30,000	301	Other South American States.....		7,103
Austria.....	700	909	<b>Total.....</b>	<b>178,100</b>	<b>2,411,911</b>
Italy.....	5,600	3,929			
United States.....	700	255	<b>IX. India-rubber clothing:</b>		
<b>Total.....</b>	<b>322,700</b>	<b>10,617</b>	Germany.....	94,000	2,137
			England.....	66,000	4,023
<b>VI. India-rubber textiles, surgical and household articles, shoes, unsewed:</b>			France.....	54,000	1,841
Germany.....	234,900	1,854	Austria.....	8,000	38
England.....	144,000	390	Italy.....	2,000	95
France.....	38,700	2,757	Holland.....	10,000	
United States.....	9,900		Elsewhere.....		75
Austria.....	4,500	434	<b>Total.....</b>	<b>234,000</b>	<b>8,209</b>
Italy.....	4,500	2,759			
Belgium.....	2,700				

It will be observed that in the foregoing tables the United States do not figure conspicuously, appearing, in fact, in but three of the nine categories, and there only for comparatively small amounts, viz:

India rubber—	Francs.	Per cent.
Thread.....	18,200	3.73
Shoes.....	9,900	2
Hose.....	700	0.2

A prominent rubber dealer in this city, to whom I am indebted for many valuable suggestions in the preparation of this report, writes as follows:

It is in the nature of the business that, with the exception of rubber thread and rubber shoes and perhaps some specialties in technical goods, such as hose and belting, the United States stand little chance of competing successfully in the Swiss market, inasmuch as there is a great production in England, Germany, and France, and the manufacturers in those countries have an advantage over the Americans in being able to supply goods quickly, which, as all engaged in the rubber trade will understand, is of primary importance in rubber goods intended for technical, industrial, and surgical purposes, as well as in the rubber clothing and piece goods. The import of rubber thread and rubber shoes from the United States, as mentioned above, though small, is nevertheless a beginning. Its extension depends to a great degree on the American manufacturers themselves. It must, however, by no means be looked upon as an easy matter. Rubber manufacturers in the United States contemplating the establishment or extension of an export business must reconcile themselves to the conviction that export relations with an old market can not be acquired in a hurry, but that the field requires planting and care before regular harvests of any importance can be reaped.

As regards the merits of American rubber goods in comparison with those from other countries, the same dealer observes:

As far as rubber thread is concerned, quality and price are what tell. As regards rubber shoes, however, shape, style, and finish are also of equal importance, and American manufacturers, desiring to build up a successful export trade in this line, must consent to adapt their goods, when intended for European sale, to the requirements of the European markets.

The North British Rubber Shoe Company, of Edinburgh; the Compagnie Nationale de Caoutchouc, of Paris; and the Russian-American Company, of St. Petersburg, justly enjoy a very high reputation as to the quality, shape, and finish of their rubber shoes, and it will consequently require great efforts on the part of American manufacturers to compete successfully with them in this market. It can only be done by engaging experienced firms established on the spot as informants and buyers, and by following their advice. It will not do to look upon the export business merely as a periodical offset for eventual slack times at home; on the contrary, export orders should always receive the first attention because of the longer time required for correspondence and delivering. Delays or failures in the supply, or irregularity in the shapes once adopted, would at once put a stop to the business. Energetic and patient American manufacturers may, however, by following the foregoing suggestions, build up a trade in Switzerland, of which Zurich is the commercial center, and would in time find it a valuable item in their export relations.

These remarks, coming as they do from an experienced rubber dealer of long standing in this community, can not but prove of value to American manufacturers desiring to open direct trade with Switzerland. I would especially dwell upon the importance of three of the points referred to, viz, first, the prompt delivery of goods; second, the adapting of shipments, as regards shape and style and finish, to the wants of this market; and third, the necessity of not merely regarding the export business as a safely valve for dull times in the home market. How ready our domestic manufacturers are to throw over the foreign orders when business is "booming" at home, is evidenced by a letter from a large rubber shoe factory to the Zurich dealer in question, dated



"Boston, October 15, 1890," saying that "owing to the demand for goods in this country exceeding the supply," it will probably be another season before they can seriously go in for export. The same dealer further informs me that an order for shoes which he sent to Boston in May last was not delivered until this month (October), this and then, with 20 per cent. addition on account of the alterations made to suit the Swiss market. On the other hand, similar orders, when sent to the companies above named at St. Petersburg, Paris, and Edinburgh, are promptly filled with saleable goods at fixed prices. American manufacturers must bear this fact in mind, if they expect to compete.

In conclusion, I append herewith a list of the dealers in rubber goods in this city:

H. Specker, 90 Bahnhofstrasse, Zurich.  
 J. E. Naef, 10 Marktgasse, Zurich.  
 L. W. Custer, 83 Bahnhofstrasse, Zurich.  
 Keyser-Pauly, 8 Thalgaasse, Zurich.  
 E. Naef, 10 Baerengasse, Zurich.  
 L. Wollstadt, 69 Bahnhofstrasse, Zurich.  
 Gust. Wunderli, 4 Limmatquai, Zurich.  
 L. Wachendorf, 4 Werdstrasse, Ausersihl.

Price lists from two of the above-mentioned firms also accompany this report.

GEORGE L. CATLIN,  
*Consul.*

UNITED STATES CONSULATE,  
*Zurich, October 29, 1890.*

## TURKEY.

REPORT BY CONSUL-GENERAL SWEENEY, OF CONSTANTINOPLE.

The principal articles imported are the rubber overshoes and water-proof garments. About 7,500 boxes or cases, each containing an assortment of 50 pairs, are sold annually here from the month of September to April. As regards quality those of the North British India Rubber Company, of Edinburgh, England, and the Russian-American India Rubber Company, of St. Petersburg, Russia, are considered here the best. There has been an attempt by some dealers to sell American rubber overshoes here, and they imported a small quantity, but I am informed that they could not carry on the trade satisfactorily.

The trade is generally carried on for the account of the different European manufacturers, who keep stocks here during the winter season. The agents keep up the prices according to the quality of their goods, and sell to all the wholesale houses of this capital, and to provincial customers. The overshoes must be made out of thick material and in fashionable shape, with red lining, these being the requirements of this market, and should be here before the month of October. The approxi-

mative proportion of the different kinds which are demanded is 60 per cent men's, 10 per cent boys', 20 per cent women's, 6 per cent girls', and 4 per cent children's.

I give below a statement of the quantities imported and prices realized by the various makers:

Manufacturers.	Quantities sold per annum (in cases of 50 pairs).	Price of men's (per case of 50 pairs).	Price of women's (per case of 50 pairs).
	<i>Cases.</i>		
North British India Rubber Co.....	1,500 to 2,000	\$36.30	\$28.00
Russian-American India Rubber Co.....	350 to 500	36.30	27.50
Liverpool India Rubber Co.....	1,200 to 1,500	32.47	24.20
Hamburg India Rubber Co.....	1,200 to 1,500	26.37	22.00
Hutchinson, Paris.....	1,500 to 2,000	26.37	22.00

The goods are delivered in Constantinople at the above prices, from agents' stores, free of freight, insurance, sundry charges, and customs, which amount together to about 12 per cent ad valorem.

#### WATERPROOF GARMENTS.

The quantity of coats imported in different shapes, and chiefly for gentlemen and boys, annually for the wants of the capital and that of the provinces is calculated to about 12,000 to 15,000 pieces. The largest portion comes from Manchester, England. Glasgow; London, England; Paris, France; Hamburg, Germany; and Vienna, Austria, send the most fashionable of these waterproof coats. The selling prices here run from \$1.93 to 10.89 per piece on the same conditions as for overshoes:

As regards other India-rubber articles, there is no industry existing in this country. There is only a small importation of sheet valves, pipes, and tubes for machinery, and some other goods for surgical and medical use. The value of all these goods is \$75,155.69 per annum, according to the last statement of the custom-house authorities.

The best method for introducing American rubber goods in this market is for American manufacturers first to decide to follow the prices of the competition, and then intrust their business into the hands of a clever agent, who by means of timely advertisements and a good exhibition of their goods would be able to make a way for them. In addition to this the American manufacturers must bear in mind that special shapes and making up of the overshoes will be required according to the wants of the customers, and that all garments must be of double texture, provided with hoods, and made much wider than those used in England, France, or Germany, as the people of this country are rather stout, have large shoulders, and wear the waterproofs over thick winter overcoats.

I beg to thank E. J. Merstrauff, a well-known merchant of this city dealing largely in rubber goods, for the greater portion of the information contained in this report. Mr. Merstrauff will be glad to assist

American rubber manufacturers in the work of introducing their wares into this market.

Z. T. SWEENEY,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Constantinople, December 29, 1890.*

## THE UNITED KINGDOM.

REPORT BY CONSUL GRINNELL, OF MANCHESTER.

It has at all times been a difficult matter to obtain from English manufacturers and merchants information relative to the trades in which they are engaged, and now, owing to the recent passage of the new tariff, the difficulty is greatly increased, and any attempt by an American to procure facts or figures which would be of use or interest to manufacturers in the United States is practically a vain one.

I have, in accordance with instructions, endeavored to obtain some information as to the manufactures of India rubber in the consular district of Manchester. To this end I addressed sixteen letters of inquiry to the principal manufacturers and dealers in rubber goods in this district. I have received but five replies, two of which were refusals to give any information whatsoever, and one only of the remaining three touched the questions contained in my letter.

The manufactures of rubber produced in this district consist mainly of sheets used in the manufacture of card clothing, air-proof goods, balls, bed and hospital sheeting, belting, bicycle rubbers, mats, cart covers, dress preservers, elastic bands, waterproof garments, hose, rugs, sheeting, surgical goods, and tubing and tires for all purposes.

Rubber coats and shoes are not manufactured in this district, and in this connection Messrs. J. Mandleberg & Co., Limited (one of the largest manufacturers of India-rubber piece goods, waterproof garments, etc., in Manchester), in their reply to my inquiries say:

Our experience of American rubber goods extends only to shoes, which we consider compare favorably with those from other countries.

Messrs. J. Mandleberg & Co., Limited, furnished me with a copy of two of their price lists, and here I would observe that this firm merit the thanks of the Department, as being the only firm which gave and showed willingness to give information as to their manufactures.

Statistics as to the extent and value of the importation of manufactures of rubber into this district are not obtainable. I am enabled, however, through the courtesy of Mr. Herbert Standring, publisher of the India Rubber and Gutta-percha and Electrical Trades Journal, to give below the value and quantity, with the countries of origin, of manufactures of rubber imported into the United Kingdom for the last four years.

## MANUFACTURES OF RUBBER.

*Imports into the United Kingdom.*

From—	1886.		1887.		1888.		1889.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>	
Germany .....	1,611,751	\$191,142	1,688,200	161,443	2,055,955	164,166	1,943,997	165,135
Holland .....	343,715	52,155	191,629	28,589	207,720	28,356	182,246	27,381
Belgium .....	258,965	43,580	334,062	56,691	86,643	13,220	86,416	15,326
France .....	267,695	38,620	394,269	48,138	366,658	42,362	482,767	58,567
United States .....	185,488	27,181	204,542	25,479	374,410	40,990	416,388	50,397
Other countries .....	11,150	804	2,188	82	15,796	764	26,062	1,483
British Possessions .....	2,446	• 247	1,762	67	9,328	717	1,100	150
<b>Total .....</b>	<b>2,681,210</b>	<b>353,729</b>	<b>2,818,653</b>	<b>317,489</b>	<b>3,116,510</b>	<b>290,573</b>	<b>3,132,976</b>	<b>318,439</b>

I am also indebted to Mr. Standing for a copy of a "Statistical statement from the official returns of the India rubber, caoutchouc, and gutta-percha trade of the United Kingdom during the last decade," which I inclose.

During the four quarters of the year ending September 30, 1890, the invoiced value of waterproof garments shipped from this consular district to the United States was as follows:

Quarters ending—	Amount.
December 31, 1889 .....	\$19,050.22
March 31, 1890 .....	7,552.75
June 30, 1890 .....	5,634.43
September 30, 1890 .....	17,027.03
<b>Total .....</b>	<b>49,264.43</b>

I inclose, extracted from the columns of the India Rubber and Gutta-percha Journal, interesting statistical tables relating to the importation and exportation of caoutchouc, India rubber, and manufactures thereof.

WILLIAM F. GRINNELL,  
*Consul.*

UNITED STATES CONSULATE,  
*Manchester, November 20, 1890.*

Imports of caoutchouc (raw) into the United Kingdom for each month from January, 1883, to October, 1890.

Month.	1883.			1884.			1885.			1886.		
	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)
January.....	20,269	£338,279	833	14,796	£247,653	834	19,355	£227,373	284	18,418	£212,331	230
February.....	21,043	375,204	856	24,933	364,956	292	28,730	354,205	246	19,131	237,333	248
March.....	17,871	292,293	336	28,133	392,148	278	18,221	186,968	265	16,902	175,130	208
April.....	21,294	360,140	367	21,630	262,351	242	12,050	190,889	217	15,709	181,271	230
May.....	20,405	359,700	852	12,336	119,207	193	12,934	140,315	217	12,615	124,565	187
June.....	18,791	283,887	802	14,004	123,484	176	10,650	99,554	187	11,041	105,322	190
July.....	14,421	197,196	273	14,161	112,037	158	7,994	88,988	223	11,284	111,639	197
August.....	20,199	291,698	288	10,448	92,313	176	11,654	126,017	216	12,014	115,846	192
September.....	15,178	229,074	801	14,657	135,623	185	11,503	117,738	204	17,049	196,409	234
October.....	19,955	285,284	235	11,528	110,483	191	11,935	109,956	198	13,351	139,721	239
Ten months.....	188,926	3,032,755	*321	168,616	1,960,265	*235	144,146	1,531,816	*219	147,414	1,617,587	*219
November.....	20,942	319,500	305	14,091	141,124	200	15,330	167,687	218	22,974	362,320	263
December.....	17,554	266,021	903	17,294	165,491	191	20,227	226,175	223	23,130	260,839	253
Twelve months†.....	229,101	3,652,817	*318	198,844	2,272,499	*228	180,141	1,951,735	*220	192,518	2,202,746	*223
1887.												
January.....	30,960	£422,036	273	21,145	£277,057	262	22,507	£273,580	243	23,104	£274,241	248
February.....	20,520	268,749	261	28,242	380,316	269	37,734	480,104	254	23,978	304,525	265
March.....	30,787	246,036	160	14,620	180,676	247	24,317	299,194	246	27,720	338,016	243
April.....	19,327	245,946	254	19,112	198,213	208	15,264	145,595	191	20,817	251,404	241
May.....	15,531	170,208	219	14,116	145,267	210	15,871	154,526	194	18,388	214,742	234
June.....	14,811	165,820	223	12,473	131,143	207	9,876	99,266	201	14,528	166,846	230
July.....	13,285	141,095	212	12,119	117,863	194	13,171	131,883	186	16,368	159,219	194
August.....	18,064	200,519	222	15,656	151,685	194	13,207	125,986	191	12,296	135,130	209
September.....	17,114	184,430	215	19,080	223,085	234	20,500	229,263	213	24,707	285,261	239
October.....	16,410	198,416	215	16,390	169,822	207	19,615	213,580	218	23,676	302,421	255
Ten months.....	198,707	2,243,232	*226	172,963	1,976,596	*228	185,062	2,163,233	*222	203,593	2,504,835	*246
November.....	17,236	199,893	232	21,736	268,374	247	17,409	188,724	216	.....	.....	.....
December.....	19,594	239,340	244	23,473	284,466	242	23,903	260,747	219	.....	.....	.....
Twelve months†.....	323,539	2,652,545	*228	218,171	2,529,436	*232	236,310	2,617,369	*221	.....	.....	.....

\* Average.

† Revised figures.

*Exports of caoutchouc (raw) from the United Kingdom for each month from January, 1883, to October, 1890.*

Month.	1883.				1884.				1885.				1886.			
	Quantity (in cwts.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Average price per cwt. (in shillings)	Quantity (in cwts.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Average price per cwt. (in shillings)	Quantity (in cwts.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Average price per cwt. (in shillings)	Quantity (in cwts.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Average price per cwt. (in shillings)
January.....	7,785	£116,213	288	288	6,909	£87,377	250	250	10,968	£117,007	214	214	6,146	£83,500	206	206
February.....	4,351	61,443	222	222	10,573	144,281	272	272	9,418	101,784	216	216	6,805	70,266	206	206
March.....	4,322	68,373	270	270	8,443	81,966	254	254	7,222	75,049	207	207	9,355	97,622	208	208
April.....	8,301	118,914	286	286	9,474	116,531	246	246	6,551	65,468	199	199	9,648	118,685	241	241
May.....	13,078	206,025	315	315	8,466	66,673	212	212	6,460	63,641	197	197	17,216	231,408	208	208
June.....	6,663	101,725	305	305	6,121	64,339	210	210	6,967	79,536	228	228	11,728	151,951	259	259
July.....	5,248	75,107	274	274	5,831	64,935	187	187	5,301	43,110	162	162	8,074	94,725	234	234
August.....	6,703	85,376	254	254	11,814	103,443	175	175	5,275	53,152	201	201	6,093	62,741	205	205
September.....	9,391	143,286	305	305	14,394	125,261	174	174	8,742	82,769	189	189	8,416	92,728	220	220
October.....	11,402	168,886	286	286	10,410	96,946	186	186	5,878	58,135	197	197	8,854	96,679	218	218
Ten months.....	77,244	1,135,363	*284	*284	90,492	966,321	*213	*213	72,780	740,251	*203	*203	92,535	1,080,803	*223	*223
November.....	11,518	156,530	271	271	8,589	85,631	199	199	10,003	79,648	159	159	7,853	91,139	229	229
December.....	13,748	174,438	253	253	10,785	105,357	186	186	9,469	99,056	208	208	8,928	110,067	246	246
Twelve months†.....	102,570	1,463,359	*285	*285	109,856	1,155,437	*210	*210	89,810	963,513	*214	*214	111,437	1,308,880	*224	*224
1887.																
January.....	12,126	139,309	229	229	9,799	113,249	221	221	11,740	131,164	228	228	10,645	112,655	211	211
February.....	12,312	129,840	211	211	7,251	73,458	202	202	7,163	77,227	215	215	11,283	114,890	204	204
March.....	11,290	139,668	246	246	10,427	89,940	172	172	7,869	85,699	218	218	16,882	161,445	215	215
April.....	9,581	125,474	262	262	14,734	162,644	220	220	13,665	154,390	225	225	12,314	147,359	239	239
May.....	11,712	116,430	198	198	11,271	122,947	218	218	10,343	176,687	216	216	18,630	252,634	268	268
June.....	10,566	130,933	247	247	11,368	141,452	249	249	8,115	83,011	204	204	10,103	117,330	232	232
July.....	5,655	72,339	255	255	9,313	94,309	202	202	6,687	60,819	208	208	9,277	124,960	272	272
August.....	4,851	55,367	228	228	9,473	82,758	175	175	8,750	82,398	188	188	9,489	134,353	283	283
September.....	8,598	97,617	237	237	9,310	93,331	200	200	8,711	133,979	227	227	12,090	145,568	240	240
October.....	11,277	121,579	215	215	11,984	129,626	216	216	14,611	155,005	212	212	9,589	122,561	255	255
Ten months.....	97,938	1,128,556	*280	*280	104,980	1,103,714	*210	*210	106,774	1,149,869	*215	*215	120,502	1,455,774	*241	*241
November.....	12,945	131,648	203	203	14,291	125,508	190	190	10,973	123,707	225	225	.....	.....	.....	.....
December.....	5,887	81,459	286	286	8,593	96,613	224	224	11,286	121,171	214	214	.....	.....	.....	.....
Twelve months†.....	116,570	1,341,643	*282	*282	127,814	1,335,835	*209	*209	130,506	1,411,554	*216	*216	.....	.....	.....	.....

\* Average.

† Revised figures.

Imports of gutta-percha (raw) into the United Kingdom for each month from January, 1883, to October, 1890.

Month.	1883.			1884.			1885.			1886.		
	Quantity (in cwt.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)	Quantity (in cwt.)	Value de- clared by the trade to customs.	Average price per cwt. (in shillings)
January.....	672	26,020	179	4,523	237,057	163	7,540	248,025	127	3,523	223,327	132
February.....	9,756	74,078	151	9,508	78,503	165	3,110	21,249	136	6,311	37,213	118
March.....	4,997	37,136	148	3,879	20,133	103	6,184	43,970	142	3,337	16,795	100
April.....	5,477	40,043	146	7,062	54,286	141	2,963	14,584	123	2,533	19,252	130
May.....	2,129	18,875	177	6,901	24,552	162	3,575	24,282	135	3,968	26,023	150
June.....	7,063	46,183	130	5,699	43,255	151	3,454	22,385	129	784	4,296	109
July.....	2,308	19,672	170	5,534	44,626	161	2,833	18,286	129	2,399	13,619	113
August.....	4,084	33,932	166	4,551	30,518	134	4,991	42,944	122	4,465	39,477	137
September.....	5,590	35,569	128	4,401	31,466	143	3,197	18,236	114	4,951	33,935	137
October.....	5,590	35,672	127	2,437	22,493	*184	7,232	47,736	132	1,169	7,151	122
Ten months.....	47,606	347,180	*145	54,995	417,648	*152	46,479	301,707	*130	33,460	221,088	*132
November.....	3,670	34,749	189	3,145	22,824	145	2,238	17,038	152	4,331	29,463	136
December.....	11,797	86,459	146	4,573	22,374	97	5,177	29,359	113	2,906	19,257	132
Twelve months†.....	63,800	476,881	*150	62,713	462,746	*147	53,639	347,133	*129	40,697	269,808	*132
January.....	1,474	26,471	88	1,725	212,974	162	2,899	223,370	105	5,158	255,038	213
February.....	2,671	2,566	76	1,928	5,268	113	1,813	20,918	231	7,216	88,841	216
March.....	2,448	16,290	133	1,690	13,253	157	3,119	29,113	186	5,249	70,753	240
April.....	3,649	16,336	90	1,199	7,907	130	4,133	48,183	223	8,204	100,588	275
May.....	2,792	22,270	160	3,199	25,462	159	3,457	43,456	261	6,505	66,543	201
June.....	2,177	14,623	134	2,552	20,812	163	2,928	27,580	189	3,134	26,909	171
July.....	1,495	9,362	126	1,015	7,623	160	3,773	47,531	251	4,951	43,657	215
August.....	1,324	6,323	96	2,964	29,913	202	7,201	106,173	204	4,786	55,709	225
September.....	2,047	16,424	160	2,727	21,698	159	4,702	42,506	181	7,075	78,708	225
October.....	1,841	13,741	148	1,811	15,571	172	5,417	52,128	*303	9,175	99,267	216
Ten months.....	19,898	124,426	*125	19,810	161,378	*163	38,942	488,960	*241	60,494	686,013	*226
November.....	1,403	9,557	136	1,505	14,024	179	2,820	21,652	186	.....	.....	.....
December.....	2,844	22,580	158	1,108	6,258	112	6,780	56,284	254	.....	.....	.....
Twelve months†.....	24,145	156,563	*129	22,483	181,600	*162	47,832	575,029	*226	.....	.....	.....

\* Average.

† Revised figures.

*Exports of gutta-percha (raw) from the United Kingdom for each month from January, 1883, to October, 1890.*

Month.	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value de- clared by the trade to customs.	Average price per cwt. (in shillings).
<b>1883.</b>									
January	915	£7,811	170	229	£1,618	135	1,423	£11,522	162
February	1,009	8,105	160	831	1,959	118	1,157	7,771	124
March	1,590	5,258	175	529	3,972	156	814	4,577	149
April	1,587	15,213	101	564	5,423	192	857	7,357	171
May	1,896	7,826	176	1,144	12,598	220	939	6,014	128
June	734	7,786	212	1,478	4,735	163	147	2,264	171
July	767	7,543	186	1,126	6,992	124	853	5,663	152
August	1,148	9,286	161	940	6,021	126	850	4,820	146
September	4,474	3,874	155	793	4,698	118	603	3,350	111
October	563	4,371	153	581	3,763	129	989	3,774	104
Ten months	8,687	76,878	*177	6,825	51,776	*152	7,832	56,112	*143
November	397	2,458	125	225	1,943	172	1,121	8,421	153
December	778	4,653	119	637	2,984	93	713	5,923	166
Twelve months	9,862	84,019	*170	7,687	56,693	*147	9,666	70,656	*146
<b>1888.</b>									
January	1,296	9,675	146	791	3,599	91	721	6,423	178
February	979	9,062	185	847	3,258	186	980	4,204	221
March	1,213	5,538	91	1,069	6,417	120	715	5,135	143
April	1,881	873	97	401	2,464	122	797	6,917	173
May	381	1,898	99	636	4,543	142	873	4,847	111
June	389	2,098	108	616	5,446	164	401	3,041	151
July	1,317	9,500	144	967	5,957	123	616	4,546	147
August	608	3,470	113	601	9,960	902	893	3,324	200
September	773	6,310	163	500	3,246	129	695	7,605	219
October	750	5,100	136	787	6,775	172	763	9,686	254
Ten months	7,896	53,564	*136	6,790	51,965	*151	6,294	55,798	*177
November	421	2,050	145	761	5,917	155	587	6,126	209
December	517	6,102	197	851	5,190	122	1,371	13,053	190
Twelve months	8,824	61,716	*139	8,372	63,072	*149	8,304	75,986	*181

\*Average.

†Revised figures.



Imports of caoutchouc (raw) into the United Kingdom from 1885 to 1889, showing countries of origin.

Country.	1885.				1886.				1887.				1888.				1889.			
	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwt.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).		
Aden.....	3,595	230,917	172	4,984	247,545	190	6,355	268,024	200	4,646	241,108	177	4,425	239,574	179					
Africa, East:																				
Portuguese.....	797	7,600	190	1,369	13,242	193	2,604	26,202	194	2,791	26,400	189	2,884	26,798	187					
Native.....	4,317	30,755	141	5,157	36,265	166	2,293	20,405	186	2,149	18,712	174	1,086	8,368	171					
Africa, South (British).....	1,027	9,060	176	2,317	19,769	170	5,753	31,269	180	2,412	21,375	177	1,495	9,681	150					
Africa, West:																				
British.....	11,615	97,855	168	21,892	175,766	169	26,909	224,875	166	19,611	154,682	158	13,545	105,426	155					
Portuguese.....	2,559	24,665	191	8,844	51,944	214	5,324	54,678	205	2,898	24,263	197	1,951	15,876	162					
Other parts.....	15,890	143,297	181	18,969	171,465	180	17,961	147,552	194	20,894	142,455	195	24,714	167,751	196					
America, Central:	2,121	20,401	192	498	5,714	230	1,107	31,917	289	8,914	75,431	184	9,207	90,812	219					
America, United States of.....	3,895	26,425	136	7,222	26,901	72	7,443	31,837	215	8,673	75,584	225	1,257	10,715	171					
Belgium.....	97,324	1,255,978	258	90,948	1,330,854	292	118,965	1,605,115	261	106,617	1,604,108	300	122,649	1,776,718	286					
Brazil.....																				
China.....																				
Colombia, United States of.....	430	3,946	183	529	5,045	190	1,260	14,823	237	1,581	19,415	245	879	11,518	262					
Ecuador.....	39	200	200																	
France.....	8,813	28,392	148	4,450	26,321	118	6,155	46,635	180	3,803	29,223	153	6,074	84,073	192					
Germany.....	1,527	11,916	156	1,434	9,905	139	2,655	11,784	160	8,464	22,225	128	7,422	49,646	134					
Holland.....	2,138	21,269	199	1,413	10,073	142	2,118	16,949	160	1,313	14,213	156	2,668	20,246	152					
Java.....																				
Gold Coast and Legos.....																				
India, British:																				
Bombay and Scinde.....	6,122	54,974	179	11,936	111,224	186	11,688	109,725	188	21,989	196,884	179	14,998	125,095	167					
Bengal and Burmah.....	6,151	57,900	188	5,642	52,649	185	6,422	73,375	228	1,942	21,399	220	3,709	36,730	198					
Madagascar.....	41	381	176																	
British West Indies.....																				
Mauritius.....	1,098	11,493	209	658	6,971	212	413	4,704	197	1,139	6,139	219	9,176	97,449	212					
Mauritius.....	7,298	75,010	207	5,588	74,717	267	7,109	96,093	270	11,276	117,432	268								
Portugal.....	7,692	61,080	180	6,050	47,185	156	9,503	79,287	167											
Straits Settlements.....	2,965	28,852	261	2,622	3,738	285	1,113	1,665	296	93	1,456	313								
Uruguay.....																				
Other countries.....	577	4,488	155	586	4,848	165	461	2,562	111	1,269	2,687	41	1,969	9,740	114					
Total.....	180,141	1,981,735	220	194,748	2,222,156	228	237,511	2,704,655	227	220,360	2,555,341	231	236,310	2,617,369	221					

*Exports of caoutchouc (raw) from the United Kingdom from 1885 to 1889, showing receiving countries.*

Country.	1885.			1886.			1887.			1888.			1889.		
	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).
America, United States of.....	25,164	£221,334	175	51,766	£607,276	234	44,824	£467,068	208	49,979	£455,333	182	46,617	£472,778	203
Belgium.....	2,035	19,475	191	1,125	12,774	227	1,174	14,671	250	1,942	13,950	145	1,958	15,113	162
British Possessions.....	449	4,608	205	200	1,528	153	54	445	165	320	4,198	145	420	6,065	290
France.....	6,760	112,058	331	10,605	102,994	194	9,842	98,765	201	9,565	90,962	190	11,420	116,418	204
Germany.....	26,740	276,218	206	26,799	303,912	227	35,129	413,481	235	38,149	394,916	207	39,004	398,501	204
Holland.....	7,811	83,283	213	5,799	69,974	241	6,257	81,608	261	7,064	89,635	253	8,870	102,743	231
Italy.....	1,715	20,317	236	1,011	15,196	300	2,101	28,268	269	2,807	41,780	297	4,291	59,307	276
Russia.....	18,847	223,030	236	13,848	187,001	270	16,396	233,101	276	16,489	241,661	298	17,689	235,951	287
Other countries.....	18,289	3,191	220	284	3,231	227	296	4,172	282	272	3,443	253	337	4,688	280
Total.....	89,810	963,514	214	111,437	1,303,880	234	116,572	1,341,564	230	126,587	1,335,828	211	130,506	1,411,554	216

Via port—		1885.	1886.	1887.	1888.	1889.
Dover.....	cwts.	991	6	1	4	1,495
Folkestone.....	do.	2	1,014	1,092	1,469	632
Glasgow.....	do.	852	311	531	206	625
Harwich.....	do.	18,543	87	39,395	948	14,233
Hull.....	do.	44,832	12,104	75,047	14,504	81,197
Liverpool.....	do.	27,180	69,848	26,851	75,026	24,269
London.....	do.	2,150	27,180	1,285	32,402	1,983
New Haven.....	do.	859	5,900	40	1,984	44
Southampton.....	do.	89,810	7	116,572	1	63
Other ports.....	do.				126,587	130,506

*Imports of gutta-percha (raw) into the United Kingdom from 1885 to 1889, showing countries of origin.*

Country.	1885.			1886.			1887.			1888.			1889.		
	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).
British East Indies.....	24	2162	135	.....	.....	.....	.....	.....	.....	.....	.....	.....	41,554	2,485,966	224
British Guiana.....	1,149	9,100	158	961	28,526	136	1,109	23,781	156	2,078	23,053	221	3,085	56,092	363
China.....	.....	.....	.....	.....	.....	.....	363	3,911	240	188	1,538	163	1,005	13,831	275
France.....	.....	.....	.....	724	5,849	161	.....	.....	.....	181	1,528	168	.....	6,075	177
Germany.....	1,631	12,706	155	1,077	6,101	113	216	714	66	633	2,529	80	1,496	12,984	174
Holland.....	50,810	323,518	127	36,996	244,617	132	22,343	142,436	127	19,128	151,804	158	.....	.....	.....
Straits Settlements.....	225	1,647	146	104	653	125	72	658	183	273	1,060	79	5	51	204
Other countries.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	53,839	347,133	*129	40,697	289,806	*132	24,138	156,500	*129	22,463	181,560	*161	47,832	576,029	*240
Stock in London (reported by Smith & Son).....	50,640	.....	.....	50,800	.....	.....	45,400	.....	.....	.....	.....	.....	.....	.....	.....
Imports to London.....	48,180	.....	.....	31,520	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

\* Average.

*Exports of gutta-percha (raw) from the United Kingdom from 1885 to 1889, showing receiving countries.*

Country.	1885.			1886.			1887.			1888.			1889.		
	Quantity (in cwts.).	Value declared by the trade to customs.	Average price per cwt. (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).	Quantity in cwts.).	Value declared by the trade to customs.	Average price (in shillings).
America, United States of.....	664	27,437	224	1,016	29,551	188	794	26,800	170	1,080	28,758	105	746	27,647	206
British Possessions.....	1	8	160	80	225	186	2,473	21,901	177	1,425	7,153	190	663	2,175	66
France.....	1,639	9,663	114	2,817	25,366	180	.....	.....	.....	.....	.....	.....	2,510	21,419	171
Germany.....	3,940	23,698	145	3,466	19,922	115	4,070	23,843	117	3,801	32,539	170	3,366	34,756	205
Holland.....	3,106	23,085	148	3,571	14,460	81	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other countries.....	266	1,797	135	578	5,935	205	1,457	9,172	123	1,109	8,564	154	999	9,380	188
Total.....	7,687	56,693	147	9,666	70,656	146	8,824	61,711	139	8,373	62,890	149	8,904	75,383	181

*Exports of caoutchouc (manufactured) from the United Kingdom (in pounds sterling)  
from 1885 to 1889, showing receiving countries.*

To—	1885.	1886.	1887.	1888.	1889.
France	£156,041	£172,783	£214,917	£214,688	£201,632
Germany	124,582	156,673	184,410	207,529	179,857
Belgium	127,975	127,078	132,348	144,596	121,231
Holland	61,690	61,450	67,382	70,751	76,124
United States of America	52,068	57,581	46,885	44,489	58,284
Victoria	36,031	34,823	34,655	48,731	47,684
British East Indies	41,112	36,304	47,902	56,008	45,934
Argentine Republic	14,340	18,501	18,955	24,185	37,215
New South Wales	32,747	29,130	32,603	37,455	86,334
Brazil	27,036	30,287	28,401	32,781	36,285
Sweden and Norway	19,269	18,776	19,910	24,512	32,580
Mexico	24,782	27,608	27,414	30,543	25,453
British North America	21,856	24,612	19,362	25,621	21,549
Spain and Canaries	16,430	16,420	18,140	17,202	17,202
Russia	15,867	15,077	23,561	11,997	16,296
Italy	14,085	12,535	13,253	10,943	15,803
New Zealand	14,518	13,034	14,160	13,516	15,430
South Africa	3,449	3,945	6,698	10,159	14,961
Turkey	15,861	20,016	13,320	11,556	14,960
Chile	7,734	7,257	8,979	7,712	15,542
Denmark	11,966	9,546	9,744	12,341	12,232
Japan	8,803	5,737	13,752	7,217	11,997
Queensland*	(*)	(*)	(*)	7,126	7,382
Australian Colony not named*	(*)	10,047	12,291	6,762	7,124
United States of Colombia	3,175	6,141	6,437	4,807	6,551
Austrian Territory		6,423	6,047	5,106	6,439
Uruguay	4,601	2,681	3,290	4,506	5,690
Portugal			6,250	6,478	5,553
Peru	2,808	4,273	2,953	4,396	5,254
West Indies			6,817	6,305	5,087
Greece	3,724	3,905	3,099	3,449	3,263
Other foreign countries	16,780	19,273	11,008	16,357	17,292
Other British possessions	6,039	7,825	2,942	2,752	5,487
Ecuador	1,603	2,250	1,368	2,385	1,026
China	5,118	5,367	4,267		
Hongkong	5,109	3,850	6,766	2,940	
Australasia*	*10,084				
Total	910,763	971,108	1,070,311	1,143,271	1,125,555

Those marked \* show that 1885 Queensland and other Australian colonies are together in "Australasia;" 1886-1887 Queensland in "Australian colonies."

*Fluctuations in the price of para for the past four years, from Jackson & Tait's list.*

Prices paid during—	1887.				1888.				1889.				1890.			
	Fine.		Negro heads.		Fine.		Negro heads.		Fine.		Negro heads.		Fine.		Negro heads.	
January	s. 3	d. 0	s. 3	d. 4	s. 3	d. 3	s. 2	d. 3	s. 2	d. 10	s. 1	d. 2	s. 2	d. 10	s. 1	d. 2
February	3	3	4	2	3	1	2	2	2	9	1	1	11	3	2	0
March	3	3	5	2	3	3	2	2	2	7	1	8	3	6	2	3
April	4	3	5	2	3	1	2	2	2	7	1	7	3	7	2	5
May	4	3	5	2	3	0	2	10	3	0	1	9	1	10	3	7
June	3	5	3	4	2	7	2	5	2	10	3	0	1	10	3	7
July	3	4	3	2	2	5	2	4	2	11	3	0	1	10	3	7
August	3	2	2	11	3	0	2	11	3	0	1	10	3	0	2	10
September	2	11	3	0	2	0	4	2	3	2	11	3	0	2	10	3
October	2	11	3	0	2	0	4	2	3	2	11	3	0	2	10	3
November	3	1	3	2	2	2	2	4	2	11	3	0	1	10	3	7
December	3	0	3	2	2	3	2	4	2	11	3	0	1	10	3	7

*Messrs. Jackson & Tull's monthly report, 1st November, 1890.*

## STOCK, ETC., OF INDIA RUBBER IN LONDON.

Totals, Jan. 1 to Dec. 31, 1889.			Landed.	Delivered.	Stock.		
Landed.	Delivered.				1890.	1889.	1888.
130	115	Para .....	22	21	14	21	14
268	330	Borneo .....	49	29	115	94	214
101	172	Assam .....	3	1	38	59	54
1,164	1,391	Other sorts .....	194	95	352	574	817
1,663	2,008	Total .....	268	146	549	748	1,090
Stock in Liverpool:							
		Para .....			465	620	395
		Other sorts .....			349	300	618
Total United Kingdom .....					1,363	1,668	2,112

	Prices paid during the month.	Against same time in—	
		1889.	1888.
Para:		s. d. s. d.	s. d. s. d.
Fine .....	3s. 9d. to 3s., spot; 3s. 7d. to 3s. 3d., delivery .....	2 10 - 3 0	2 11 - 3 0
Negro heads .....	2s. 8d. to 2s. 7½d., Manos .....	1 10½ - 1 11	1 10 - 2 0
Penang .....	2s. 2d. .....	2 0	2 1
Borneo .....	No sales .....	1 7½ - 1 8½	1 5
West India, sheet and scrap .....	do .....	No sales ..	1 11½
Mozambique:			
Ball and sausage .....	2s. 5d. to 2s. 3d., good .....	1 8½ - 1 11	1 8 - 1 9½
Liver .....	1s. 11d. to 1s. 9d. .....	1 6½	1 4
Madagascar .....	3s. 1d. to 2s. 8d., as in quality .....		2 0
Loanda niggers .....	No sales .....		No sales ..
Assam:			
No. 1 .....	do .....	2 0	2 3
No. 2 .....	do .....	1 7	No sales ..
No. 3 .....	1s. 3d. .....	0 7 - 0 9	do .....

## CORK.

## REPORT BY CONSUL PIATT.

India rubber does not enter into the manufactures of this consular district. The importation of manufactures of India rubber, however, is considerable, chiefly in the form of waterproof clothing for both male and female wear, the dampness of the climate rendering such protection desirable, if not a necessity, at all seasons. These goods are brought here by local merchants from England ready-made. No American goods of the kind are used, so far as I can learn, although boots and shoes of American manufacture are brought here and used to some extent, but only through purchase from English importers of the same. No duties are imposed upon foreign manufactures of rubber.

JOHN J. PIATT,  
Consul.

UNITED STATES CONSULATE,  
Cork, December 8, 1890.

## DUBLIN.

REPORT BY CONSUL REID.

There are no industries in this consular district engaged in the manufacture of India-rubber goods.

There is a considerable amount of rubber goods purchased in bulk by local dealers and manufactured into a variety of waterproof garments. The goods in bulk and rubber garments are purchased from London and other British firms almost exclusively. It is impossible to obtain figures showing the amount of rubber goods imported into this district. There are no goods of this description exported.

American rubber goods are to some extent consumed here, but these consist exclusively of products adapted to foot wear. These goods are purchased from London firms, who are the importers.

Goods of this description, however of any manufacture are not in general use here. The demand for them is limited.

Water-proof garments are largely used here, however. These are exclusively made of a three-ply material, the ply of rubber never being exposed, as it is lined and overlaid with cloth. The garment thus affords warmth as well as protection from rain.

I am informed by the local dealers that the objection, in this market, to water-proof goods of American manufacture is that the rubber surface is exposed upon the exterior. For this reason, from the standpoint of this market, they are not as durable or so presentable as the cloth-covered and cloth-lined goods. To meet these objections would seem to be the first step necessary to extend the trade of American manufacturers of rubber goods in this market.

ALEX J. REID,  
*Consul.*

UNITED STATES CONSULATE,  
*Dublin, Ireland, October 25, 1890.*

## DUNFERMLINE.

REPORT BY COMMERCIAL AGENT REID.

This district is peculiar and reports from it must be meager of interest or information. The whole territory of Fife is only a little over 40 miles long by 18 wide, fully one-third of which is represented by Dundee. It has only two important towns, in neither of which, outside of the great linen and linoleum factories, is there any wholesale house, indeed, any house whose supplies, except in a few limited specialties, come from beyond Edinburgh or Glasgow. In making my inquiries I meet with a somewhat resentful feeling caused by recent American legislation.

India-rubber goods are purchased by dry goods and shoe houses in

very limited quantities from the large rubber houses of Edinburg and Glasgow. The amount can not be exactly ascertained even under the most courteous inquiry, but it is, unquestionably, too limited to predicate any new or changed demand until American goods of equal or increased value are offered at convenient places of supply on equal or lower terms.

There are no direct imports of rubber goods from the United States so far as can be learned.

There seems a preference for American-made rubber boots and shoes, especially for ladies' wear, and which are obtained from a Boston agency in Glasgow.

The establishment of supply centers of easy access, or by personal visitation as is here vigorously done, and advantageous rates, are the natural and only means of introducing successfully American traffic.

JAMES D. REID,  
*Commercial Agent.*

UNITED STATES COMMERCIAL AGENCY,  
*Dunfermline, October 27, 1890.*

---

### LEEDS.

#### REPORT BY CONSUL WIGFALL.

Sundry efforts to obtain the information desired by the Department, with regard to the manufacture and distribution of caoutchouc in this district, have resulted unsatisfactorily, by reason of combined indisposition and inability to answer on the part of those applied to.

From what has been gathered, however, through the search it may be assumed that there are, properly speaking, no manufactures of India rubber in the Leeds district.

There are a number of establishments which deal in the finished product, and there may be something done in a minor way as to making up garments from the tissues prepared in other districts; but, so far as I am advised, there are no firms here engaged in handling the crude material.

It may be added that there is a leather and rubber boot company established here, which makes boots by a patent process of alternate layers of rubber and leather in the sole.

Much India rubber, doubtless, is also used in connection with the manufacture here of machinery, etc.; but it would seem presumable that these auxiliary parts are made elsewhere in the first instance and brought into the district ready, or approximately ready, for application.

India-rubber overshoes are not worn so universally here as in the northern United States. Cloaks and wraps, however, both for men and women, are much in vogue, and the employment of the material for surgical and sanitary purposes is carried to a great extent.

An abstract from a catalogue attached hereto\* shows cloaks, wraps, overcoats, carriage and stable appliances, shooting and fishing articles, hose, riding boots, tennis balls and shoes, pillows, cushions, baths, beds, sheets, belts, bandages, and other things for hospital and surgical purposes, door mats, cricket bats, tobacco pouches, football bladders, bags, portmanteaus, cart and rick covers, and bicycle tires. No doubt the list exhibits but approximately the numerous and various methods of using this marvelous material.

Edinburg, in Scotland, and London and Manchester, in England, are three centers of manufacturing production, and perhaps the most important in the Kingdom in this line of industry.

There is no duty imposed on imports into the United Kingdom, either of the raw material or the goods made therefrom.

There is hardly an export trade from this district of proportions worth mentioning. The trade here, as already indicated, is chiefly of distribution among the consumers of the neighborhood, except so far as India rubber may enter incidentally into the construction of articles mainly composed of other material.

Germany and France are probably the chief sources of supply for foreign manufactured goods. So far as my impression goes, the United States do not send much into this district of these goods. There is perhaps a tendency on the part of the trade here to consider the American product of shoes, for example, as not sufficiently substantial. On the other hand, American clothes-wringers are well spoken of, as indicating skill in manipulation of the rubber, which is a main component of the article.

A suggestion which occurs with reference to extending the American trade here is, in effect, that in order to obtain trade it is necessary to solicit it. If the prices indicated in the catalogue annexed leave enough margin for distributive expenses and adequate profits, there would seem to be no reason to doubt that a well-advised endeavor, backed by sufficient capital, would meet with success. Personal solicitation alone might answer. This being combined with branch houses and stocks in hand, the result would be still more sure.

Trade here now is, in a general way, in good condition; and while the crisis of energy has probably been passed, there appears to still remain the prospect of a some time continuing prosperity.†

The British Encyclopedia gives the imports of India rubber into England as rising from 464 hundredweights in 1830 to 6,640 in 1840, 7,616 in 1850, and 152,118 twenty years later, in 1870.

For the years 1842 to 1855, inclusive, Mr. Thomas Hancock, in his

---

\* Omitted.

† This was written before the coming to light of the grave disturbance which has just transpired in the banking world at London. What results in the near future may accrue will shortly appear. The current condition of trade represented above must, of course, be regarded subject to those results.



Personal Narrative (London, Longmans, 1857), gives the imports of India rubber to the United Kingdom at 18,541,600 pounds, ranging in annual amounts from 317,184 pounds (2,832 hundredweights) in 1842 to 5,006,736 pounds (44,703 hundredweights) in 1855, and derived in gross from the following sources in the amounts named, respectively:

	Pounds.
East Indies .....	2, 623, 936
United States .....	950, 880
Brazil .....	11, 825, 968
Java .....	1, 060, 752
Elsewhere .....	2, 080, 064
Total (165, 550 hundredweights) .....	18, 541, 600

He states the exports of raw material for the same period as 4,839,520 pounds, to the following districts:

	Pounds.
Russia .....	390, 880
Hause Towns .....	774, 816
Holland .....	560, 672
Belgium .....	1, 034, 544
France .....	694, 064
United States .....	1, 328, 992
Elsewhere .....	55, 552
Total (43, 210 hundredweights) .....	4, 839, 520

These figures for fourteen years show a reëxport amounting to about 26 per cent of the gross imports.

The board of trade returns show an import (gross) for eleven years, from 1879 to 1889, inclusive, of 2,151,792 hundredweights, ranging from 148,329 hundredweights in 1879 to 236,274 hundredweights in 1889, against the figures for 1842-1855 of 2,832 hundredweights and 44,703 hundredweights.

The exports of raw caoutchouc for the eleven years 1879-1889, inclusive, by the board of trade returns, are 1,151,265 hundredweights, or about 53½ per cent of the gross imports, showing a distributive energy in the English markets more than doubled from the one period to the other, reckoned by percentage of the whole movement in each instance.

The table appended below is compiled from the board of trade returns, 1879-1890. A comparison for the ten months of 1888-'89-'90 shows the latest figures at hand, and indicates an increased trade as to quantity during the current year over any previous one.

Year.	Manufactures of caoutchouc.		Raw caoutchouc.					
	Exports from United Kingdom.		Exports from United Kingdom.			Imports to United Kingdom.		
			<i>Cwt.</i>			<i>Cwt.</i>		
1879 .....	£761,717	\$3,706,895.78	90,730	£1,003,565	\$4,883,849.07	148,329	£1,588,786	\$7,731,827.07
1880 .....	833,837	4,057,867.76	76,710	1,063,420	5,175,133.43	166,459	2,354,069	11,456,076.79
1881 .....	939,172	4,570,480.54	94,631	1,174,829	5,717,305.33	169,469	2,212,364	10,766,469.41
1882 .....	999,529	4,864,207.88	101,654	1,537,568	7,482,574.67	179,907	2,729,298	13,282,128.72
1883 .....	1,070,365	5,208,931.27	102,570	1,463,331	7,121,300.31	227,422	3,618,276	17,608,340.15
1884 .....	1,004,730	4,889,518.55	109,856	1,155,489	5,623,187.22	198,001	2,266,870	11,031,722.85
1885 .....	910,763	4,432,228.14	92,272	918,955	4,472,094.51	179,703	1,975,658	9,614,539.66
1886 .....	971,108	4,725,897.08	109,416	1,281,499	6,236,414.88	192,518	2,202,746	10,719,663.41
1887 .....	1,070,311	5,208,668.48	116,570	1,341,643	6,529,105.66	235,539	2,682,545	13,054,605.24
1888 .....	1,143,271	5,563,728.32	127,814	1,335,835	6,500,841.03	218,171	2,529,436	12,309,500.29
1889 .....	1,124,787	5,473,775.94	129,042	1,394,247	6,785,103.03	236,274	2,612,704	12,714,724.02
11 years .....	10,829,590	52,702,199.74	1,151,285	13,670,381	66,526,909.14	2,151,792	26,772,752	130,289,597.61
10 months, January to October:								
1890 .....	1,012,965	4,929,594.17	120,502	1,455,774	7,084,524.17	203,593	2,504,835	12,189,779.53
1889 .....	933,208	4,541,456.73	106,774	1,149,369	5,593,404.24	195,062	2,163,233	10,527,373.40
1888 .....	955,258	4,648,763.06	104,990	1,103,714	5,371,224.18	172,962	1,876,596	9,619,104.43
	2,901,431	14,119,813.96	332,206	3,708,857	18,049,152.59	571,617	6,644,664	32,336,257.36

The principal sources were given by the Encyclopedia (issue of 1881) as follows, in order of value: South America, Central America, Africa, Asiatic.

The Pará rubber, from South America, was called the most important. The African product was reckoned to take the second place as to quantity produced. A considerable amount of this product was reported coming to Great Britain, but regarded as inferior in quality to the Pará.

Pará rubber was credited with 1,670 tons in 1857 and 8,000 tons in 1879 of imports; but the last-named amount would seem discrepant from the figures of the board of trade returns for the same year, which give a total import for 1879, from all sources, of only 7,416 tons, 9 hundredweights.

Some other supplies indicated were Ceara (Rio Janeiro), Cartagena, and Guayaquil (the bulk of these two said to go to the United States, as is also reported to be the case with reference to the general Central American export, especially that from Nicaragua and Panama).

A small amount of "West India" (Central American in origin, but so called from its transport in West India steamers) was said to be brought to England. This latter was called the best quality of Central American rubber.

From Honduras and Mexico the imports were rare or of small amount.

The Asiatic countries also sent rubber to England. Three-fourths of the India export was credited to Great Britain and one-fourth to the

United States. The Assam rubber came chiefly from Calcutta. Borneo was another small source; as were also Rangoon, Penang, and Java. Sumatra and Malacca were said to not contribute to the English supply.

The accompanying extracts from English papers of recent date indicate an active interest in the question of the rubber supply.

[London Times, November 5, 1890.]

#### THE NEW WEST AFRICAN EXPEDITION.

The expedition to Lagos under Mr. James Bennett, with Commander Cameron as his chief staff, will leave England in the yacht *Fawn* on Saturday or Monday next. The party will consist of twenty-four all told, and it is computed that they will be absent six months. The following official notice regarding the expedition has been issued from the colonial office:—

"Notice is given hereby that the colony will shortly be visited by Mr. James Bennett, of London, charged by the right honorable the Secretary of State for the colonies with the duty of inquiring into and reporting upon the mineral and vegetable resources of the colony with a view to their further development. Mr. Bennett, besides being a gentleman of large experience both as a consulting mining engineer and in commerce, is the inventor of a special process for extracting, by means of chemicals, pure rubber from the milk of the wild fig tree, of which several species are to be found in the colony, and it is hoped that great advantage will accrue to the colony and adjoining territories from his visit. He will devote particular attention to those articles, such as rubber, gums, fibers, and minerals, in which it is thought that the present trade of the colony may be largely increased, or which are considered apt to become subjects of local manufacture. His excellency the governor trusts that the people of the colony, and especially the important commercial body, will place their valuable local knowledge at Mr. Bennett's disposal, and otherwise render him every assistance calculated to make his visit prove useful to the colony.

By command:

OLIVER SMITH,  
*Acting Colonial Secretary.*

The COLONIAL SECRETARY'S OFFICES,  
*Lagos, March 28, 1890.*

Mr. Bennett will visit various other places on the coast, and has received the following letter from the colonial office:

DOWNING STREET, *October 25, 1890.*

"SIR: In reply to your letter of 20th instant, I am directed by Lord Knutsford to acquaint you that he will be glad to instruct the governors of the various West African colonies which you propose to visit to afford you every facility and all the information and assistance in their power. As, however, there has not been time to communicate with them in advance, his lordship is unable to make any pecuniary arrangement such as has been sanctioned in the case of Lagos. I am to add that Lord Knutsford has no objection to your undertaking any commission you may think proper for the development of trade. I am to state that the Oil rivers are not under the control of this department, but of the Foreign Office.

"I am, sir, your obedient servant,

"JOHN BRAMSTON."

[Leeds Mercury, November 11, 1890.]

The new expedition to Africa by Mr. James Bennett and Commander Cameron is for the purpose of finding out the possibilities of fresh trade on the West Coast, up the Gambia, the Oil, and other rivers. There are many materials of value not yet

exchanged by the natives with the traders, and india rubber is to have special attention, Mr. Bennett having a process by which the crude material can be so purified as to go at once into the hands of the manufacturer. It is not proposed to trade on this trip, but simply to ascertain what trade may be done. Two or three English ships leave the West Coast every week at present with cargoes valued at from £200,000 to £300,000, and there is thus a fine opening for enterprise. With palm oil at £40 per ton and India rubber at from £200 to £500 per ton, Commander Cameron may well say that "the old Spanish galleons are not to be compared with the vessels of to-day." The expedition goes out in a small steamer of 45 tons register.

[Yorkshire Post, November 15, 1890.]

MR. BENNETT'S EXPEDITION TO WEST AFRICA—WITHDRAWAL OF OFFICIAL SUPPORT.

With reference to the statement regarding the proposed expedition to West Africa, it is announced that the colonial office, finding that the objects of Mr. Bennett's expedition are not of a merely scientific character, as had been supposed, has withdrawn the introductions to the governors of the Gambia, Sierra Leone, and Gold Coast colonies; and that Commander Lovett Cameron has informed Mr. Bennett that he has severed himself from the expedition, and holds Mr. Bennett responsible for all loss and damage. Commander Cameron's interview with Lord Knutsford on Wednesday was for the purpose of explaining that his connection with Mr. Bennett has been terminated. Mr. Bennett never received a direct appointment from the colonial office, although the governor of Lagos was authorized to arrange for his visit to that colony. All this quasi-official support, however, has now been withdrawn.

[Yorkshire Evening Post, November 15, 1890.]

The withdrawal of official support from the proposed expedition of the *Fawn* to the West Coast of Africa is generally regarded as an indirect consequence of the revelations of the week upon African exploration. The colonial office, on the ground that it finds the objects of Mr. Bennett's expedition to be not merely of a scientific character, has taken back the introductions to the governors of the Gambia, Sierra Leone, and Gold Coast colonies, and pressure has been brought to bear, it seems, upon Commander Lovell Cameron to sever himself from the expedition.

F. H. WIGFALL,  
*Consul.*

UNITED STATES CONSULATE,  
*Leeds, November 17, 1890.*

LEITH.

REPORT BY CONSUL BEUCE.

THE MANUFACTURES OF INDIA RUBBER.

As to the manufacture of rubber goods the output of this district will be about \$2,500,000, the leading article of the same being rubber shoes and boots. Next to boots and shoes are goods for mechanical purposes, to wit, hose, belting, etc. Third on the list of manufactured goods are clothing, viz., waterproofs, gossamers, etc. These goods are exported all over the world, except to the United States and Russia. Australia and New Zealand are the largest consumers—after these India and South America.

The North British Rubber Company, limited, in this city, is the largest in Great Britain, and the price lists of same are inclosed herein.

The rubber used in Great Britain is imported free of duty.

There are scarcely any manufactured rubber goods imported in this consular district. I am informed that France and Germany compete for some of the trade in Great Britain, and sell about \$500,000 worth of rubber shoes annually. Three or four years ago the competition was strong. Now there is an understanding between the manufacturers in Great Britain and on the continent so that cutting in prices has generally stopped. The manufacturers of the three nations meet yearly and arrange the prices satisfactorily among themselves.

There are practically no rubber goods sent from the United States to this district or in fact to Great Britain. I am informed that whatever goods are sent are for the most part sent to London, presumably for resident Americans.

There are no duties imposed on foreign manufactures of rubber in this country.

I am informed that American goods are regarded here as inferior in quality or durability. This, however, is not my own experience, nor the judgment of American travelers who have tested both British and American manufactures, and it is conceded by the manufacturers here that for the art of manufacture American rubber goods are equal to any in the market.

I might add that the North British Rubber Company, Limited, has a capital stock of \$1,750,000. The Scottish Vulcanite Company, also of Edinburg, is the largest manufactory of hard-rubber goods in Great Britain, and is stocked for \$875,000, many of the shareholders being the same as those of the North British Company. The Vulcanite Company manufactures largely for the home trade of Great Britain, but sells some goods in France, Germany, and Canada. Their trade with the United States is limited.

It would require, in my judgment, much energy and considerable expense on the part of American manufacturers or dealers to obtain a profitable trade in this country. It would call for first-class agents to introduce the goods. Conservative people take slowly to anything new, or to goods in any way differing from what they are accustomed to wear. I might add that rubber overshoes are rarely worn in this country. It is not often that one sees a rubber overshoe even in wet weather. Ladies and gentlemen wear, for the most part, clumsier and heavier shoes than we do either in New York or in the Sierra Nevadas. Waterproofs, or "mackintoshes," are worn here perhaps more than in the United States. One would think that there was an opening in the large cities of Great Britain for a first-class American shoe store, where newer patterns of shoes, more graceful and better made than those here obtainable, could be had; and such an establishment, if successful, might introduce rubber goods which are made in America.

WALLACE BRUCE.

UNITED STATES CONSULATE FOR LEITH,

*Consul.*

*Edinburgh, November 3, 1890.*

## LIVERPOOL.

REPORT BY CONSUL SHERMAN.

The only rubber manufactory in Liverpool is the Liverpool Rubber Company, Limited. The articles manufactured by this company are garden hose, boots and shoes, sheet tubing, and cord rubber, and other sundry articles for mechanical purposes. Rubber clothing is not manufactured in this district. The output of the Liverpool Rubber Company is about 3,000 to 4,000 pairs of boots and shoes per day.

There are no reliable statistics from which could be quoted the export of the several articles of rubber manufactures from this district, but I learn that the articles manufactured by the Liverpool Rubber Company are exported to all countries not tropical. The board of trade returns show that the value of caoutchouc manufactures (the produce of the United Kingdom) exported from this country during the year 1889 amounted to £1,125.55 (\$5,470,197). The value and the countries to which exported are as follows:

Countries.	Value.	Equivalent in U. S. currency.	Countries.	Value.	Equivalent in U. S. currency.
Russia .....	£16, 298	\$79, 313	Italy .....	£15, 803	\$76, 904
Sweden and Norway .....	32, 590	158, 550	Austrian territories .....	6, 439	31, 334
Denmark .....	12, 232	59, 526	Turkey .....	14, 960	72, 801
Germany .....	179, 857	875, 273	Japan .....	11, 997	58, 383
Holland .....	76, 124	370, 456	United States of America ..	56, 284	273, 905
Belgium .....	121, 231	589, 970	Mexico .....	25, 453	128, 896
France .....	201, 632	981, 241	United States of Colombia ..	6, 551	31, 837
Portugal, Madeira .....	5, 553	27, 023	Other countries .....	118, 567	576, 235
Spain and Canaries .....	17, 022	82, 837	British Possessions .....	206, 972	1, 005, 883

In addition there were exported from this country foreign manufactures of caoutchouc amounting to £27,077 (\$131,769).

The discounts vary according to circumstances. Price lists of manufacturers of rubber goods who have agencies in this city are also annexed.

All of the crude rubber used here is imported, and admitted duty free.

So far as can be ascertained, there are no rubber manufactures imported into Liverpool. These articles are imported into London from the United States, France, Germany, Holland, and Belgium, and through agencies there forwarded to the provinces for sale.

The value of caoutchouc manufactures imported into Great Britain during the year 1889 was £318,439 (\$1,549,683), weighing 3,132,976 pounds. The value and the countries from which imported are as follows:

Countries.	Value.	Equivalent in U. S. currency.	Countries.	Value.	Equivalent in U. S. currency.
Germany .....	£165, 135	\$803, 628	France .....	58, 567	285, 016
Holland .....	27, 381	133, 249	United States of America ..	50, 397	245, 253
Belgium .....	15, 326	74, 583	Other foreign countries .....	1, 483	729

The value of caoutchouc imported into Great Britain during the same period was £2,617,369 (\$12,720,413), and weighed 236,310 hundred-weights.

The import of caoutchouc into Liverpool during 1889 was 188,806 hundredweights.

Manufactures of rubber imported into this country are admitted duty free.

The only articles of American manufacture sold in this district are boots and shoes. These compare most favorably with those of the Liverpool Rubber Company, those manufactured in other parts of the country, and those imported on account of their being slightly cheaper and of better finish. In addition to these advantages, the American manufactured boots are preferred on account of their being more durable and not so liable to crack.

With the advantages that American boots and shoes have over those imported or manufactured here, it is believed that a much greater sale would follow their being placed more prominently before the public.

It is well to note here that rubber overshoes are worn only to a very limited extent.

THOS. H. SHERMAN,  
*Consul.*

UNITED STATES CONSULATE,  
*Liverpool, December 24, 1891.*

---

#### GLASGOW.

##### REPORT BY CONSUL BROWN.

I find that almost every kind of goods of which rubber forms the whole or a constituent part is manufactured in this district, boots and shoes being the only notable exception. There are no less than five extensive manufactories of rubber goods situate in Glasgow and its immediate vicinity, only two of which, however, manufacture from the crude rubber. If any classes or lines of goods manufactured here might be considered specialties, it would be waterproof clothing, which is manufactured in great variety and in large quantities. Next to this class of goods, rubber belting, hose, tubing, etc., is manufactured most extensively. These goods are exported to Spain, Portugal, and the northern countries of Europe, in limited quantities, and largely to Australia and other British colonies throughout the world.

A very little is exported to the United States, the total value for the last six months being but \$5,000, and consisted solely of waterproof clothing and waterproof piece goods, and a single small consignment of rubber overshoes.

I am informed that there is scarcely any importation of the manufactures of rubber, except from the United States, and the amount im-

ported from the United States is not large. The actual amount imported from the United States for six months ending December 1, 1890, was 1,753 cases (and packages of all kinds), weighing 72,730 pounds, and of the value of \$32,560. I understand a portion of this amount was rubber in barrels, for remanufacture, but much the largest item of the above consisted of boots and shoes. I have heard but a single criticism upon American rubber goods, but I imagine I might have heard the same criticism repeated had I made further inquiry, and that was that American rubber goods are not heavy and durable enough, though it is admitted that the quality, for the weight, is satisfactory. The only suggestion that can be offered in relation to question nineteen is, if American rubber manufacturers are desirous of extending their trade in this direction, they must not only produce good goods (which I believe they are now doing), but undersell the home manufacturer.

L. W. BROWN,

*Consul*

UNITED STATES CONSULATE,  
Glasgow, December 18, 1890.

### LONDON.

#### REPORT BY CONSUL-GENERAL NEW.

*Manufactures.*—London is one of the chief, if not the chief, centers of India-rubber manufacture. There are a large number of manufactories in and around London where India-rubber goods of all kinds are manufactured, the principal of which are India-rubber clothing, balls, and balloons, belting, India-rubber canvas shoes, door springs, floor cloth, hose, machine belting, mats, overshoes, bicycle tires, stamps, and steam packing.

*Exports.*—The countries to which manufactures of India rubber are exported are as follows (the values are for 1889):

Countries.	Value.	Countries.	Value.
Russia.....	\$81,490	Chile.....	\$67,710
Sweden and Norway.....	162,900	Brazil.....	181,425
Denmark.....	61,165	Argentine Republic.....	186,075
Germany.....	899,280	Other foreign countries.....	157,625
Holland.....	380,620		
Belgium.....	606,155	Total.....	4,592,915
France.....	1,008,160	British Possessions in—	
Portugal.....	27,765	South Africa.....	74,806
Spain.....	85,110	East Indies.....	229,670
Italy.....	79,015	Australasia.....	569,770
Austria.....	32,195	North America.....	107,745
Turkey.....	74,800	West Indies.....	25,435
Japan.....	59,985	Other British Possessions.....	27,435
United States of America.....	281,420		
Mexico.....	127,265	Grand total.....	5,627,775
United States of Colombia.....	32,755		

*Duties.*—There is no duty on raw rubber or on the manufactured goods in this country.



## IMPORTS.

*Caoutchouc.*—The following table gives the quantity and value of caoutchouc imported into this country in 1889, and the countries whence imported:

Countries.	Quantity.	Value.	Countries.	Quantity.	Value.
	<i>Cwt.</i>			<i>Cwt.</i>	
Germany.....	7,422	\$249,290	Other foreign countries ..	1,411	\$35,440
Holland.....	2,568	101,230			
Belgium.....	1,257	53,875	Total foreign countries	196,799	11,500,175
France.....	6,674	170,305			
Portugal.....	9,176	487,245	British Possessions in—		
West Africa.....	26,655	918,135	West Africa.....	13,545	527,130
East Africa.....	3,962	180,620	Gold Coast.....	5,760	204,530
Madagascar.....	3,709	183,650	South Africa.....	495	18,405
United States of America.....	9,927	254,060	Aden.....	4,425	197,870
Central America.....	205	11,255	East Indies.....	14,998	625,475
United States of Colombia.....	879	57,590	Other British Possessions.....	288	13,260
Ecuador.....	295	19,910			
Brazil.....	122,649	8,777,590	Grand total.....	236,310	12,086,845

*Manufactured goods.*—The quantity and value of manufactured rubber goods imported into the United Kingdom from foreign countries in 1889 were as follows:

Countries.	Quantity.	Value.
	<i>Pounds.</i>	
Germany.....	1,943,997	\$825,075
Holland.....	182,246	136,905
Belgium.....	86,416	76,630
France.....	482,767	292,835
United States of America.....	416,388	251,985
Other foreign countries.....	20,062	7,415
Total.....	3,131,876	1,591,445
British Possessions.....	1,100	750
Grand total.....	3,132,976	1,592,195

## AMERICAN RUBBER GOODS.

*Imports.*—The amount of rubber manufactures imported from the United States in 1889 was 416,388 pounds of the value of \$251,985. In 1888 the amount was 374,410 pounds of the value of \$204,950. It is not possible to give the separate items.

*Quality.*—It is considered in the trade that American waterproofs and rubber shoes are capable of holding their own against all but the very highest priced of those articles made in this country.

*How to increase trade.*—The only way I can suggest to American rubber manufacturers to extend their business is to appoint agents here to show their goods. There are already one or two American firms who have agents established in London.

JOHN C. NEW,  
Consul-General.

UNITED STATES CONSULATE-GENERAL,  
London, November 29, 1890.

## MANCHESTER.

REPORT BY CONSUL FOLSOM.

In this consular district there are but few (if any) rubber goods imported directly from the United States, purchases being made in London and elsewhere. There are no duties imposed upon foreign manufactures of India rubber. The greater part of American rubber goods seen here are not considered superior to those of English manufacture. The only suggestion that can be offered to manufacturers desiring to extend their trade into this district is that they should be able to supply the purchaser with superior goods at equal or lower rates than those of English or foreign manufacture.

BENJAMIN FOLSOM,  
*Consul.*

UNITED STATES CONSULATE,  
*Sheffield, December 8, 1890.*

## CONTINENT OF AMERICA.

### DOMINION OF CANADA.

#### FORT ERIE.

REPORT BY CONSUL BEDELL.

India rubber is not manufactured in this district. Occasionally boots, shoes, clothing, belting, etc., are imported from Buffalo, amount not to exceed \$500 per annum, on which there is a duty of 25 to 30 per cent ad valorem. No crude is imported. Nothing can be done for American manufacturers, as the duty practically prohibits the sale of American goods here, excepting where better goods are required than those manufactured in this country.

OSSIAN BEDELL,  
*Consul.*

UNITED STATES CONSULATE,  
*Fort Erie, October 18, 1890.*

#### GASPÉ BASIN.

REPORT BY CONSUL DICKSON.

There are no rubber goods of any kind manufactured in this district, nor are there any rubber goods to speak of imported into this district from the United States direct, although about one-half of the rubber goods sold here are of American make; the merchants procure them through jobbing houses at Montreal and Quebec.

American rubber goods are regarded here far superior to Canadian, and sell for one-third more. Rubber boots and shoes are the main kinds of rubber goods used here, and they are used to a large extent.

The duties on rubber goods in the Dominion of Canada are 25 per cent.

In regard to the last question, contained in this circular, my suggestion to the rubber manufacturers would be to send their price lists to this Consulate, and I will cheerfully give them to the large dealers.

ALMAR F. DICKSON,  
*Consul.*

UNITED STATES CONSULATE,  
*Gaspé Basin, Quebec, November 15, 1890.*

## GUELPH.

REPORT BY CONSUL HUNT.

Crude rubber may be entered free of duty, as may rubber substitute. There is, however, a tariff of 35 per cent on clothing and 25 per cent on shoes, etc. Probably not over \$5,000 to \$7,000 worth of foot gear is sold in the entire district. It is estimated that the consumption of other rubber goods will not be much in excess of \$18,000, nearly all of which is of English importation, excepting perhaps the common black heavy rubber coats, which are generally imported from the United States.

LOTON S. HUNT,  
*Consul.*

UNITED STATES CONSULATE,  
*Guelph, October 31, 1890.*

---

*Kingston.*—There is no manufacture of India rubber in this consular district. Rubber shoes, boots, and over garments are in general use; nearly all are manufactures of Canada; a small quantity is imported from the United States to supply fastidious customers, as it is claimed, doubtless with truth, that the American rubber looks neater and is better finished than that of Canadian make. Crude or raw rubber is free; manufactures of rubber pay a duty of 25 per cent ad valorem. (M. H. Twitchell, Consul, Kingston, October 13, 1890.)

---

*London, Ontario.*—Questions 11, 12, and 13: No.

Question 14: Crude India rubber is admitted to Canada free of duty.

Questions 15 and 16: None.

Question 17: From 10 to 25 per cent.

Question 18: The bulk of rubber goods used being of Canadian manufacture there admits of no comparison.

Question 19: I am afraid the American article would have little or no sale, having to pay above duty.—(H. Z. Leonard, Commercial agent, London, Ontario, October 14, 1890.)

---

NOVA SCOTIA.

REPORT BY CONSUL-GENERAL FRYE, OF HALIFAX.

No rubber goods are manufactured in Nova Scotia nor in any of the maritime provinces. They are manufactured in another part of Canada, and many of them are sold in this province; but I am unable to state the quantity, for comparison with the goods imported.

The imports of rubber manufactures at the port of Halifax are said to embrace much the larger portion of all such goods imported into the province. For the year ending June 30 last the total value of

the same was \$31,233. The value of those imported from the United States was \$13,737, from Great Britain \$17,344, the small remainder being from Germany.

The following statement from the records of the custom-house specifies the kind of goods and value from each country for the year mentioned:

Name of article.	Great Britain.	United States.	Germany.	Total.
Boots and shoes .....		\$3, 219		\$3, 219
Belting .....	\$23	3, 348		3, 371
Clothing .....	15, 015	2, 144		17, 159
Hose .....	15	698		713
Packing and matting .....	307	1, 539		1, 846
Rubber, not elsewhere specified .....	1, 984	2, 784	\$142	4, 715
Total .....	17, 344	13, 737	142	31, 223

From this statement it appears that all the imported boots and shoes, practically all the belting and hose, over 80 per cent of the packing and matting, and nearly 60 per cent of articles not elsewhere specified are from the United States. Of rubber clothing only 12½ per cent is from the United States, all the rest being of English manufacture.

Dealers in rubber goods inform me that American rubber boots are superior to those of Canadian manufacture, and are more salable. The larger part used, but not all, is from the United States. American rubber shoes for ladies' wear are also of finer and better quality than the Canadian, and sell for a little more. But of the ordinary quality of shoes the larger part is manufactured in Canada.

The Canadian tariff on manufactures of rubber is as follows:

India-rubber boots and shoes with tops or uppers of cloth or of material other than rubber, 35 per cent ad valorem.

India-rubber boots and shoes, and other manufactures of India rubber not elsewhere specified, 25 per cent.

India-rubber clothing, or clothing made waterproof with India rubber, not elsewhere specified, 35 per cent.

Rubber belting, hose, packing, mats and matting, and cotton or linen hose lined with rubber, 5 cents per pound, and 15 per cent.

India-rubber vulcanized handles for knives and forks, 10 per cent.

It may not be possible to make any suggestions beneficial to the American manufacturers desirous of extending their trade into the maritime provinces. In view of the Canadian tariff it is necessary that imported goods should excel in quality those of domestic manufacture, and the reputation of such imported goods, once established, should be maintained. Further, too large profits should not be expected where the Canadian manufacturer is protected by the tariff. In this way, with no increase in the Canadian rate duty, I believe energetic American manufacturers may hold their trade and extend it more or less in the maritime provinces.

WAKEFIELD G. FRYE,  
Consul-General.

UNITED STATES CONSULATE-GENERAL,  
Halifax, November 5, 1890.

## PORT SARNIA.

REPORT BY CONSUL PACE.

Rubber goods, such as belting, packing, boots and shoes, rubber clothing, and rubber hose, are sold here to some extent, and the dealers here purchase their stock principally in Montreal.

The firms engaged in the sale of rubber goods in Port Sarnia may be enumerated as follows: Six boot and shoe firms whose sales are confined to rubber boots and shoes, sell \$21,000 of these goods each year.

Four hardware dealers are engaged in selling belting, hose, and packing; they estimate their sales to be \$10,000 yearly. The dry-goods dealers, druggists, and fancy-goods establishments report their aggregate sales at \$11,000, making a total of \$42,000 as the value of rubber goods sold at Port Sarnia during the year ending June 30, 1890.

Of the total amount of rubber goods consumed at this port it is estimated that 20 per cent of these goods were purchased in the markets of the United States, the balance or 80 per cent of the whole amount is purchased direct from the manufacturer at Montreal.

The rate of duty on rubber goods imported into this country from foreign countries, including England, is as follows:

On rubber boots and shoes, composed entirely of rubber, 25 per cent ad valorem; on shoes composed in part of cloth with rubber bottoms, 35 per cent. On heavy rubber clothing with rubber surface 10 cents per pound and 25 per cent ad valorem; on vulcanized rubber not wholly manufactured, 10 per cent on finished articles composed of vulcanized rubber, 35 per cent.

The percentage of rubber goods imported from the United States is principally confined to the better qualities of rubber boots and shoes, and fancy articles composed wholly or in part of vulcanized rubber.

The high rate of duty imposed upon articles manufactured from rubber seeking a market in Canada, which resulted from the so-called national policy of Sir John A. McDonald, has had the tendency to stimulate the manufacture of rubber in Canada, and during the last ten years competition in trade here has cheapened these articles to the Canadian consumer fully 50 per cent.

SAM'L D. PACE,  
Consul.

UNITED STATES CONSULATE,  
Port Sarnia, October 31, 1890.

## PRINCE EDWARD ISLAND.

REPORT BY CONSUL HALL, OF CHARLOTTETOWN.

India rubber is not manufactured in this province.

This is a wet, cold country, and the demand for rubber boots and shoes is large per capita. Dealers draw their supplies from the prov-

inces of Ontario and Quebec. Some say the quality is as good as American; others say the American is the best.

I. G. HALL,  
Consul.

UNITED STATES CONSULATE,  
Charlottetown, Prince Edward Island, November 1, 1890.

*Statement showing the value of India rubber goods imported into Prince Edward Island, year ending June 30, 1890.*

	Value.	Duties.		Duties collected.
		Specific (per pound).	Ad valorem.	
		Cents.	Per cent.	
Boots and shoes from United States .....	\$2, 098		25	\$524.50
Belting, 1,421 pounds, United States .....	279	5	15	112.90
Waterproof clothing, United States .....	1, 266		35	443.10
Waterproof clothing, Great Britain .....	1, 589		35	558.25
Hose, 218 pounds, Great Britain .....	102	5	15	26.05
Hose, 619 pounds, United States .....	205	5	15	61.70
Other manufactures of rubber from Great Britain .....	420		25	108.00
Other manufactures of rubber from United States .....	181		25	45.25
Packing, mats, and matting from Great Britain, 52 pounds .....	23	5		6.05
Packing, mats, and matting from United States, 13 pounds .....	10			2.15
Total .....	6, 173			1, 884.95

## QUEBEC.

### REPORT BY CONSUL RYDER.

Crude rubber has not been imported into this district since 1874, at which time the industry located in this city for the manufacture of rubber boots and shoes was removed to Montreal, notwithstanding the great effort being put forth to retain the plant here. The supply of crude rubber arriving at the port of Quebec for ten years previous to that date amounted to the gross sum of \$501,094, of which \$396,533 was imported from the United States, \$103,515 from Great Britain, \$991 from France, \$49 from Germany, and \$6 from Norway. All of this raw material was consumed in the manufacture of boots and shoes at this port.

Since 1874 the entire importations of rubber have consisted of clothing, belting, and hose. The returns show a marked falling off in importations from the United States. For instance, in three years' imports (1885, 1886, 1887), rubber goods amounting to \$48,257 were entered at this port, of which \$35,279 came from Great Britain and \$12,112 from the United States. In 1888 \$21,145 worth were imported, \$15,520 from Great Britain and \$5,384 from the United States. For 1889 imports amounting to \$29,773 were received, \$22,320 from Great Britain and \$7,028 from the United States.

These figures are significant, showing that while nearly four times the quantity of crude rubber came from the United States, Great Britain

exports to the Dominion four times the quantity of manufactured rubber which is exported from the United States. Rubber clothing is admitted at a duty of 35 per cent; hose, belting, mats, etc., at 5 cents per pound and 15 per cent; crude rubber, free.

In speaking with a dealer in rubber clothing on the subject, he said:

English goods are sold at retail about 20 per cent less, which accounts for the increased importations from that country. American goods are preferred by the better class of customers, as they are more stylish in cut, are finished in a more workmanlike manner, and more comfortable to the wearer; but they are more expensive.

The reason that English goods are cheaper is because labor in that country is so much poorer paid than in the United States. When American manufacturers can, by the use of improved methods and machinery in lieu of cheap labor, furnish rubber goods as cheaply as Great Britain, they can monopolize the trade in this market.

FREDERICK M. RYDER,

*Consul.*

UNITED STATES CONSULATE,  
*Quebec, November 20, 1890.*

---

STRATFORD.

REPORT BY CONSUL HOLLOWAY.

Imports of rubber goods for quarter ending September 30, 1890, \$3,479, principally American goods, as follows: American boots and shoes, with uppers, \$1,618; without uppers, \$1,819; English clothing, \$42.

American rubber boots and shoes are considered the best in the market, as is also English rubber clothing.

The reduction of the price, so that American goods can be retailed at the same price as Canadian manufactured goods, is the best way to increase American trade.

W. J. HOLLOWAY,

*Consul.*

UNITED STATES CONSULATE,  
*Stratford, October 15, 1890.*

---

TORONTO.

REPORT BY CONSUL POPE.

There is a manufactory in the city of Toronto where large quantities of India-rubber goods are made, consisting of clothing, hose, belting, and mechanical appliances. Boots and shoes are not made here. This is the only factory of the kind in the province of Ontario.

The factory turns out about 30,000 articles of clothing in a year and the general output for all classes of goods is about 50,000 pounds per month.



There is no export trade whatever to foreign ports.

The crude rubber is imported free of duty.

The following figures will show the extent of foreign importations for the year ended September 30, 1890, as for goods cleared in Toronto custom-house:

	Boots and shoes.	Clothing.	Miscella- neous.
United States .....	\$45,134	\$6,415	\$36,970
Great Britain .....		73,072	
Other countries .....			32,291

The exportations from the United States as per above figures show that there were \$45,134 worth of boots and shoes imported in 1890, \$6,415 worth of clothing, and \$36,970 worth of miscellaneous goods.

The following figures will show the Canadian tariff for imported rubber goods:

India-rubber vulcanized handles for knives and forks, 10 per cent.

India-rubber clothing, or clothing made waterproof with rubber, 35 per cent.

India-rubber hose, belting, packing, mats, and matting, 5 cents per pound and 15 per cent.

India rubber, manufactures of, not elsewhere specified, 25 per cent.

India rubber, unmanufactured, and rubber substitute and re-covered rubber, free.

The American rubber goods are considered superior to the Canadian and sell for a higher price.

There is only one suggestion which could be made for the benefit of American manufacturers desirous of extending their trade into this district, and that is to exercise great care in selecting goods for this market, as it is only by the superior quality that they can expect to compete with either Canadian or European goods.

CHARLES R. POPE,

*Consul.*

UNITED STATES CONSULATE,  
Toronto, November 14, 1890.

#### WINDSOR, NOVA SCOTIA.

##### REPORT BY CONSUL YOUNG.

There are no India-rubber goods made in this consular district or in the province of Nova Scotia. Importations of rubber goods into this district from a foreign country are from the United States only. The value so imported during the year 1890, as furnished to me by the collector of customs at this port, was as follows:

Boots and shoes .....	\$1,110
Clothing .....	130
Hose .....	448
Belting .....	376
Packing .....	51
Not otherwise specified .....	120

I am informed by the local dealers that India-rubber shoes are chiefly obtained from Montreal, where they are manufactured, but are of inferior quality, and known to the trade as "seconds." All of the boots sold here and the better quality of shoes are made in the United States, and the higher prices are willingly paid by many customers, not only on account of the superior quality and consequent increased durability, but because they are of better shape and finish—more stylish than those of Canadian make.

American rubber goods, especially boots and shoes, are regarded as superior to those of Canadian manufacture.

A reduction of 10 per cent in the prices would, in my opinion, increase the trade in this district. American rubber shoes sell at retail from 20 to 25 per cent higher than those of Canadian make, the difference being about equivalent to the duty imposed.

Respectfully submitted.

EDWARD YOUNG,  
*Consul.*

UNITED STATES CONSULATE,  
*Windsor, Nova Scotia, December 30, 1890.*

#### WINDSOR, ONTARIO.

##### REPORT BY CONSUL JOSLYN.

Nearly all the rubber goods sold or used in this district are imported from the United States, except boots and shoes. The latter articles are now being manufactured in Montreal and vicinity, and are crowding out the United States productions.

The manufactures of India rubber imported from the United States at the port of Windsor from the 1st day of July, 1889, to the 30th day of June, 1890, are as follows:

Boots and shoes.....	\$233
Belting .....	256
Clothing.....	135
Hose.....	379
Packing, mats, and matting .....	190
All other manufactures of .....	9, 419
Total .....	10, 612

The foregoing is the best classification that can be made. The statement does not by any means represent the amount of rubber goods used in the district. The bulk of the population of the district is along the bank of the Detroit River, and so close to the city of Detroit that clothing and boots and shoes are purchased there and put on as wearing apparel, and taken across the river without the payment of duty. Vessels also get nearly all their rubber supplies at Detroit or Port Huron.

Crude rubber and rubber in sheets, but not further manufactured, is admitted free of duty. Other than this all rubber manufactures are subject to a heavy duty.

The cost being the same, American goods are preferred to all others,

There is not enough traffic in these goods in the district to warrant any effort to extend the trade beyond its natural course.

CHAS. D. JOSLYN,  
*Consul.*

UNITED STATES CONSULATE,  
*Windsor, Ontario, October 20, 1890.*

## MEXICO.

### CHIHUAHUA.

#### REPORT BY CONSUL HEIMKE.

In this consular district there is no caoutchouc grown, while from the best information I have been able to obtain its cultivation as far north as Chihuahua has never been attempted. Neither are there any rubber manufactories in the district. From my observation I believe that in this country American rubber goods are given preference over those from other countries, although I am unable to obtain any reliable information as to the amount and value of rubber goods imported from the United States. The duties imposed upon foreign manufactures of rubber are as follows:

Rubber in sheets for packing machinery when accompanying machinery, free.

Rubber shoes and boots, 10 cents per kilogram.

Rubber coats, clothing, etc., for wear, \$1.60 per kilogram.

Rubber for billiard-table cushions, 48 cents per kilogram.

Rubber for dental use, \$2 per kilogram.

The best suggestion I can offer for the benefit of American rubber manufacturers desirous of extending their trade with Mexico is to send energetic, sober, and gentlemanly traveling agents, who speak Spanish, with a full line of samples of what they manufacture and wish to sell.

WM. HEIMKE,  
*Vice-Consul.*

UNITED STATES CONSULATE,  
*Chihuahua, October 15, 1890.*

### NUEVO LAREDO.

#### REPORT BY CONSUL-GENERAL SUTTON.

#### CAOUTCHOUC OR INDIA RUBBER.

None is produced in this district.

While none is exported from this district, there is a considerable export from other districts in Mexico.

The exports have been as follows, values in Mexican coin:

Year ending June 30—		Year ending June 30—	
1884 .....	\$202, 496	1887 .....	\$179, 530
1885 .....	66, 368	1888 .....	169, 386
1886 .....	108, 488	1889 .....	124, 527

The exports for 1889 were made from ports and to countries as follows:

Ports.	Kilos.	Amount.	Ports.	Kilos.	Amount.
From—			From—		
Acapulco .....	910	\$335	Tuxpan .....	16, 648	\$18, 342
Ciudad Juarez .....	38	100	Vera Cruz .....	64, 666	69, 600
Frontera .....	3, 079	2, 034	Total .....	131, 482	124, 547
Isla del Carmen .....	15, 475	8, 067	To—		
Manzanillo .....	1, 970	645	Germany .....	11, 630	9, 306
Mazatlan .....	45	30	Colombia .....	1, 170	1, 085
Progreso .....	1, 223	500	United States .....	112, 268	111, 576
Puerto Angel .....	466	684	Great Britain .....	6, 414	2, 580
Salina Cruz .....	1, 170	1, 085	Total .....	131, 482	124, 547
San Blas .....	3, 577	3, 841			
Soconusco .....	17, 267	14, 420			
Tampico .....	191	189			
Tonala .....	4, 757	4, 675			

It will be seen that the exports for 1884 were higher than ever since; those for 1885 the lowest, and that 1889 shows a decrease of some \$45,000 as compared with the previous year. While the Government has given much attention to this subject the decreased exports indicate that the supply is growing steadily less. As this supply comes from the southern portion of the country, our representatives in that section will be able to give more definite information than I can here.

#### MANUFACTURES OF INDIA RUBBER.

None manufactured in this district.

Imports are very small, are not stated separately, and therefore exact data can not be given.

For reasons stated above I can not give the exact data as to imports into this district. I therefore give (putting 16 and 17 together for convenience), all the data obtainable as to imports into the whole of Mexico.

Rubber coats and a cape (manga de hule) of cheap grades are imported in small quantities from the United States. Some rubber overshoes and a larger quantity of hose and belting are also imported from the United States. Elastic rubber mostly comes from Germany; shoe elastic from England, rubber erasers from Germany. The following table gives the latest data as to imports and that only from the United States, which has been published. It gives the double number (the number of the article in my translation and in the parenthesis the number in the Mexican tariff) with an abbreviated description, import duty, amount imported from the United States, and value in Mexican coin.

Nos.	Description.	Duty.	Imports.	
			Kilos.	Value.
	Belting of <i>leather</i> and <i>rubber</i> .....	Free ..	147	\$58
1 (44)	Braid, etc., of cotton with India rubber, net weight, kilo. ....	\$1.80	1,149	698
21 (34)	Elastic, etc., of cotton with India rubber, gross weight, kilo. ....	.80	1,242	1,701
24 (24)	Garters and suspenders of cotton, legal weight, kilo. ....	.85	327	1,379
52 (67)	Elastic of linen or hemp with India rubber, G. W. K. ....	.70	12	25
53 (59)	Garters and suspenders of linen, etc., L. W. K. ....	.90	4	10
86 (105)	Elastic of wool and India rubber, G. W. K. ....	.80	1,031	1,609
87 (114)	Braid, etc., of wool, with India rubber, N. W. K. ....	2.10		
90 (99)	Garters and suspenders of wool, L. W. K. ....	1.30	6	18
133 (141)	Elastic of silk and rubber, or of same and mixture of cotton, linen, or wool, wide, G. W. K. ....	1.10	360	827
134 (151)	Same as above, narrower, N. W. K. ....	4.70	2	10
135 (152)	Elastic, etc., of silk with India rubber, narrow, N. W. K. ....	7.00	36	127
507 (517)	Bands of rubber, coming separately, G. W. K. ....	.10	25,090	14,862
549 (572)	Rubber cloth, suitable for making articles of dress or for any other analogous use, G. W. K. ....	.80	2,144	1,053
550 (545)	Rubber for foot-wear, all sizes, and in strips or cords for cushions for billiard tables, G. W. K. ....	.48	6,014	3,390
551 (544)	Rubber (India) in sheets, not attached to machinery, G. W. K. ....	.10	35,036	11,848
552 (546)	Rubber in articles of dress, in all forms and sizes, G. W. K. ....	1.80	3,775	5,316
553 (547)	Rubber prepared for dentists, G. W. K. ....	2.00	62	166
573 (520)	Tubing of rubber or gutta-percha, G. W. K. ....	1.10	20,604	13,391

This table does not show the real origin of these goods. They are imported into Mexico as from the United States, while perhaps one-half of them were European goods brought through in bond.

The very limited demand of this country is mostly supplied by American rubber goods. German, English, and French goods are generally higher priced. Farther in the interior, where it rains more and is colder, there is more sale for this class of goods. Merchants here tell me that they have very little sale, and that the goods kept over to the second season are usually melted by the excessive heat. There are high-priced overcoats of silk or cotton and rubber imported from Germany which have a small sale in the interior.

I do not think there is much of an opening for an increase in our trade in this line, except in common coats and capes and in hose and belting. New manufactories and mines are likely to take a considerable increase of the latter.

The best way to extend this trade will be to send thoroughly competent salesmen, with full line of samples, to visit the principal places of consumption. Then, if deemed profitable, one or more branch agencies should be established.

WARNER P. SUTTON,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Nuevo Laredo, Mexico, October 18, 1890.*

*Paso del Norte.*—I am informed by commission merchants that the importations of rubber goods to this country come largely from the United States, but that there is no possible way to arrive at a knowledge of the amount received.

There are two ways in which the American trade may be extended, viz, by the aid of printer's ink and by the presence of the American

"drummer" or "commercial tourist." If he can not succeed, nothing will. I have full faith in his ability to greatly extend the rubber trade in Mexico, particularly if he can speak the Spanish language. (A. J. Sampson, consul, Paso Nel Norte, November 3, 1890.)

---

PIEDRAS NEGRAS.

REPORT BY CONSUL FECHÉT.

The importations of manufactures of rubber into this district is not large; importations are from United States, and none from Europe save a few suits of rubber clothing.

Merchants state that American rubber goods are preferred above all others.

Establish an agency or salesroom at chief commercial point of district, Piedras Negras preferably, where will be exhibited all lines of rubber goods from belting, clothing, boots and shoes, and rubber blankets down to a child's toy.

Two men will be needed, one as resident agent and one to travel in interior. Both should have a full knowledge of Spanish language and of Mexican trade.

This salesman need not carry a large stock; full line of samples will suffice. Located in zona libre, but 3 per cent of customs duties will have to be paid.

EUGENE O. FECHÉT,  
*Consul.*

UNITED STATES CONSULATE,  
*Piedras Negras, Mexico, October 14, 1890.*

---

SONORA.

REPORT BY CONSUL WILLARD, OF GUAYMAS.

In this consular district (Sonora, Mexico) there are no rubber trees grown for the purpose of producing rubber, either for export or other purposes. The climate is not suitable, and no experiments have been made, as I am aware of, as to the cultivation of trees, plants, or vines on this part of the Mexican coast to produce crude rubber; no crude rubber is imported and consequently there are no manufactures of rubber.

The manufactures of rubber imported are in the forms of sheet, round or square rubber for packing joints, etc., in machinery belts for machinery, hose, and a very small quantity in the shape of clothing or for foot wear (boots and shoes), and is brought exclusively from the United States; some smaller articles, such as combs, syringes, dolls, etc., are brought from Europe, but to a limited extent; the greater part of these

articles come also from the United States. In consequence of the heat of the climate and general dryness, very little rubber clothing or boots or shoes are imported. In the mines a native miner or workmen do not use, like in the United States, the manufactures of rubber in the shape of coats or boots. The amount imported through the Guaymas custom-house during the past six months was—

	Kilos.	Pounds.
Sheet or other rubber for packing machinery .....	1,000 =	2,200
Belting .....	120 =	264
Hose .....	40 =	88
Shoes .....	1 =	2½

The manufacturers of rubber pay duty as follows:

Rubber packing .....	per kilogram, of 2½ pounds..	\$0.10
Rubber belting .....	do.....	.10
Rubber hose .....	do.....	.10
Rubber for dentists .....	do.....	2.00
Rubber for billiard cushions .....	do.....	.48
Rubber articles, combs, etc .....	do.....	.30
Shoes and boots .....	do.....	.48
Rubber clothing .....	do.....	1.60

Rubber belts and packing united to machinery are free of duty. Values are not given in the custom-house documents when the duties are liquidated, and I am unable to give the amount of the invoice values of the foregoing manufactures of rubber, but I think they will not exceed \$3,000. The duties are paid in Mexican silver dollars.

As American rubber goods are the only ones imported into this district, there is no way of comparing them with those from other countries.

As will be seen by the foregoing, the principal use for rubber in this consular district is for belts, packing, etc., hose for machinery, combs, rubber bands for papers, and other small miscellaneous articles. As the climate of Sonora is warm and dry, there is very little use for rubber clothing or boots except to a limited extent, and suggestions as to the best manner of extending the trade in manufactures of rubber under the circumstances is somewhat difficult.

A. WILLARD,  
*Consul.*

UNITED STATES CONSULATE,  
*Guaymas, November 20, 1890.*

## BRAZIL.

RIO DE JANEIRO.

REPORT BY CONSUL-GENERAL DOCKERY.

Neither caoutchouc nor India rubber is a product of this consular district, nor is either in its crude state handled at all in this market. There are no manufactories, and consequently no importation of the

crude materials. The industry in Brazil is carried on in the Para district only, and it is from Para that the material in its crude condition is exported. In the State of Matto Grasso, too, there are extensive forests of the rubber tree and vine, but up to the present time they are unworked. There is some talk, however, of the formation of a company here for the extraction of the gum from these forests. Their extent is not definitely known.

The importation of rubber goods is very limited. Chiefly rubber coats and boots are used here, but to a small extent. These are brought in mainly from Europe.

As to the extension of our trade in this line of goods, I can only add that the same rule applies to this as to all other cases. Our manufacturers must study the wants of these people and the needs of the market, and manufacture their goods accordingly. These people have peculiar ideas, and consequently peculiar customs, and those who manufacture goods to meet these ideas and satisfy their customs may expect to control this market. The manufacturer need not hope to revolutionize these customs and force their goods upon the people. They cling to their ideas and buy only such goods as suit them. And up to now they have always found manufacturers in England and on the continent who study their wants and meet their demands. This is the secret of their hold here, and until our manufacturer is willing to do the same he may content himself with a child's part only of this trade.

O. H. DOCKERY,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Rio de Janeiro, February 16, 1891.*

---

## CHILE.

*Coquimbo.*—Caoutchouc is not, as far as I know, produced on this coast south of Ecuador, and importations of American India rubber goods are very small, if any.

J. GRIERSON,  
*Consul.*

COQUIMBO, *December 15, 1890.*

---

## IQUIQUE.

REPORT BY CONSUL MERRIAM.

Caoutchouc, or India rubber, is not a product of this district, nor does it enter into the manufactures of the district.

From the nature of the climate, there is no market for rubber clothing, boots and shoes, etc., and I may say that there are no importations



of rubber goods, with the exception of rubber in sheets and rings for use in connection with machinery, and this is imported from England.

Neither crude rubber nor its manufacture appear on the list of articles subject to duty, nor are they on the free list. They will therefore pay such duties as the appraiser may determine.

J. W. MERRIAM,  
*Consul.*

UNITED STATES CONSULATE,  
*Iquique, November 10, 1890.*

## URUGUAY.

REPORT BY CONSUL HILL, OF MONTEVIDEO.

Caoutchouc, or India rubber, is not a product of this district. No experiments have been made to cultivate the rubber tree and the opinion prevails that its cultivation is not practicable.

The following table shows the value of rubber goods imported during the years 1887 and 1888, these figures being the latest attainable. The amount and character of these manufactured goods can not be ascertained.

Whence.	1887.	1888.
England.....	\$2,918	\$4,259
Germany.....	606	865
Belgium.....	150	.....
Italy.....	64	32
Total.....	3,735	5,156

A uniform duty at the rate of 8 per cent ad valorem is imposed by the Government on all foreign manufactures of rubber. This is a light rate considering that the ad valorem rate on articles not specified is 31 per cent.

American rubber goods do not appear in the imports to this country. I see no reason why they should not meet with acceptance provided their introduction were pushed by intelligent and energetic agents of our manufacturers.

FRANK D. HILL,  
*Consul.*

UNITED STATES CONSULATE,  
*Montevideo, December 2, 1890.*

## VENEZUELA.

## LA GUAYRA.

## REPORT BY CONSUL BIRD.

With reference to caoutchouc, or India rubber, there is little of interest to be communicated from this portion of Venezuela, since it is neither produced nor manufactured in this district. There have been two shipments of crude rubber from this port within the past nine years, but the product came primarily from the Orinoco country.

The importation of the manufactures of India rubber is so small as to be considered of little importance. There is such a paucity of manufacturing establishments of every kind in this country that very little is used for machinery, and the climate is so mild that almost none is used for clothing, boots, or shoes. The small amount imported comes generally in the form of siphons, cupping-glass rubbers, syringes, nipples, teething rings, elastic bands, shoe elastics, erasers, suspenders, garters, etc., and of hard rubber a small quantity comes in the form of pen and pencil holders, rulers, and combs.

No statistics of rubber importations can be obtained at this port, but it may be repeated that the amount is so inconsiderable as to be practically of little interest. Of the small quantity received some of the finer articles come from France, but the chief supply proceeds from the United States, and the manufactures of the latter country are esteemed as in no way inferior to those of the former.

The import duties upon rubber articles range from \$6.65 to \$44.39 per 101 pounds. Machinery bands, piping, tubing, and sheeting pay the former rate; siphons, syringes, cupping-glass rubbers, pen and pencil holders, erasers, and teething rings pay \$11.09 per 101 pounds; combs, cloaks, shoe elastics, shoes, and manufactures not specified, pay \$22.19 per 101 pounds; garters and suspenders pay \$44.39 per 101 pounds.

It is difficult to offer any practical suggestions for the extension of our commerce in this class of goods. A sparse, uneducated, and poor population, a perennial summer climate, and the utter absence of manufactures are factors that preclude the idea of the expansion of the trade in rubber goods to any important extent.

WINFIELD S. BIRD,  
*Consul.*

UNITED STATES CONSULATE,  
*La Guayra, December 9, 1890.*

## MARACAIBO.

REPORT BY CONSUL PLUMAHER.

*Rubber trees.*—As India rubber is not produced in this consular district, nor are rubber trees known to exist within its limits, I am unable to answer the first ten questions relating to production and export of the crude article.

Questions 11, 12, and 13, referring to manufacture of rubber, do not apply to this district, as this industry is unknown here.

*Importations.*—The importations of manufactured rubber amount in value to about \$5,000 yearly, the United States, France, and Germany being the chief exporting countries.

The imports of rubber goods from the United States to Maracaibo amount to about \$3,000, the principal articles being belting and packing for engines, syringes, hose, waterproof coats, and shoes. The trade in the two last named articles is, however, very insignificant, and does not perhaps amount in value to more than \$200 in the course of the year.

*Duties.*—The duty on crude rubber is 28 cents per kilogram; upon belting, hose, packing for cylinders, rubber in sheets, and all preparations of rubber intended for the use of engines and machines, the import duty amounts to 17 cents per kilogram, and 56 cents upon all other manufactures of rubber. These, as are all other duties in this country, are imposed upon the gross weight, packing cases paying the same tax as the article therein contained.

*American goods.*—But very few articles of the same class are imported both from the United States and other countries, but when this does occur the superiority of the American goods is readily admitted, the European articles having, however, the advantage of comparative cheapness. There is no doubt that with an equality of prices American rubber goods of all descriptions would be exclusively imported.

*The increase of trade.*—Although the importations of rubber into this district are very insignificant, yet the supply seems to fully equal the demand, and I am told by a leading importer that this trade is not, like many others, an increasing one.

The people in this country have not yet become acquainted with the manifold uses to which rubber is put in the United States and Europe, and the articles which I have already specified are about the only ones of the class of goods which so far have been utilized here. It really appears, however, that there should be a field in this line for American enterprise, and I can offer no better suggestion, which indeed is but a repetition of former recommendations, than that American houses interested in this branch of trade send to this country competent Spanish-speaking traveling agents with good lines of samples. But little good results from circulars and correspondence. The mercantile conditions in South America are so entirely different from what we are accustomed to at home that personal experience founded upon observation and

contact with the people, is the first requisite for the successful establishment of business relations. This applies to all branches of trade and is a suggestion which has already been made scores of times, not only by myself, but by many other consular officers in Spanish America, and whenever it has been adopted I have invariably, at least in this district, noticed that the results were highly satisfactory.

E. H. PLUMACHER,  
*Consul.*

UNITED STATES CONSULATE,  
*Maracaibo, November 17, 1890.*

---

## BRITISH WEST INDIES.

### BERMUDA.

REPORT BY CONSUL BECKWITH, OF HAMILTON.

Crude rubber is not a product of my district; it is neither grown here nor exported from these islands.

No India rubber is manufactured in these islands and none exported from here. There are no manufacturers of India rubber here.

No crude rubber is imported here.

Manufactured goods in the shape of boots, shoes, and clothing are imported here from England and the United States. The total importations will not amount to more than \$500 yearly.

Not more than \$200 worth of manufactured goods comes here from the States in one year.

Duties on manufactured goods are 5 per cent ad valorem.

English goods are preferred to the American on account of lower prices. Goods are imported from no other country.

I can offer no suggestions for the benefit of American rubber manufacturers, as there is very little demand for rubber goods here and the supply is always equal to the demand.

HENRY W. BECKWITH,  
*Consul.*

UNITED STATES CONSULATE,  
*Hamilton, November 13, 1890.*

---

## LEEWARD ISLANDS.

REPORT BY CONSUL BRADFORD, OF ANTIGUA.

The caoutchouc tree is not and never has been grown in these islands as an article of commerce; nevertheless, they are well adapted to its culture, the tree, when planted simply as an ornament or curiosity, growing with unexampled rapidity and thrift, and attaining a large

size. There is a very large one in the gardens of Government House, Antigua; and one, planted only ten months ago by one of the prominent merchants of St. Johns, has already attained a height of 18 feet.

Of the Leeward Islands I should not hesitate to say that Dominica and Antigua offer the best facilities for the growth of the rubber, either as a tree or vine. As will be seen by the subjoined table, there is a large acreage unoccupied in Antigua, and a very much larger area in Dominica. Of this latter island, I am informed by people of repute that it is even more suitable for the growth of the caoutchouc tree or vine than even Antigua. Nearly all of the uncultivated area can be utilized; and I am assured that the cost of the land would be so small as not to enter into the question of planting at all.

St. Christophers, or "St. Kitts" as it is commonly called, is not available for the rubber industry, as it is nearly all under cultivation, mostly with sugar; but, as will be seen by the table, there are large areas in the other isles.

Since the receipt of the Department's circular, I have talked much with merchants and planters in this island; find them anxious to engage in the enterprise. I think I have seen and heard enough to justify me in saying that it would be worth the trouble and expense to any American company which should wish to send an agent to these islands to examine for himself. I would be happy to aid him in his investigations to the utmost of my ability.

There are no imports of either crude or manufactured rubber into these islands, with the exception of a few rubber coats for individual use and what are called "Plimsolls," a patent rubber sole for boots and shoes. These come from England and pay no duty. On goods of this character imported from foreign countries there is a specific duty of 6 per cent ad valorem. There is no export duty.

I may add that I have been petitioned by many planters and merchants to ask for a small supply of seed with which to experiment in this island, the project most in favor being to plant the trees in rows and what is here called "fiber" (out of which manilla cordage is manufactured) between the rows.

*Statement showing total areas and areas of uncultivated lands in the consulate of Antigua.*

No.	Name.	Areas.		Remarks.
		Total.	Uncultivated.	
		<i>Sq. miles.</i>	<i>Acres.</i>	
1	Antigua .....	170	46,099	Mostly available.
2	Anguilla .....	35	(*)	About three-fourths available.
3	Dominica .....	291	166,000	Mostly available.
4	Montserrat .....	47	20,000	Do.
5	Nevis .....	50	20,000	About one-half available.

\* Nearly all.

JNO. S. BRADFORD,  
Consul at Antigua,

UNITED STATES CONSULATE,  
Antigua, November 7, 1890.

## TRINIDAD.

REPORT BY CONSUL PIERCE.

In this consular district there are no manufactures of India rubber, and the importations of articles of that manufacture are very small, and limited principally to mats, shoes, blankets, overcloaks, and water hose. I find it impracticable to arrive at the relative amount of such articles imported from the United States and other countries for the reason that they and various other manufactured goods are entered at the custom-house under the general term of "Goods manufactured unenumerated" which pay an ad valorem duty of 4 per cent. It is believed, however, that American importations are reasonably large and so far as I have ascertained, give full satisfaction. Messrs. C. L. Haley & Co., and Messrs. Todd & Sons probably deal more largely in rubber goods than the other houses here, and I would suggest that our rubber manufacturers and dealers correspond with them in respect to details.

The caoutchouc or India rubber tree is not native to this consular district, but it has been more or less experimented with of late years, though as yet no efforts to systematically plant, beyond experimenting, have been engaged in. I have been favored in this connection with a letter from Mr. Henry W. C. Dehm, who is connected with the "Rose Hill" Nurseries of Messrs. Siebrecht and Wadley, of New Rochelle, N. Y., and is extensively engaged in the culture of tropical plants here— island of Trinidad—in which he states:

*Ficus elastica*, the white rubber, can be grown here in open districts to medium advantage, but do not think the productive power is sufficient to pay a proper dividend for the investment inside of ten years, and even then it is questionable, because they do not grow fast enough.

*The Caoutchouc or Castilloa elastica*.—This tree will pay to raise in large quantities, but it must be grown under shade. Its producing power after five years, I think, will pay a dividend of 25 per cent on investment. It grows freely and to a good size, and nearly one-third of the island would be conducive to its growth. It will also do well in Tobago. As to the other rubber-producing trees on this island they have no commercial value, as their producing power is so small it would not pay to extract the same.

The following appears in the annual report on the Royal Botanic Gardens of this colony for 1889:

*Central American rubber (castilloa elastica, Cav)*.—Our trees of this still continue to thrive, and have produced seed in fairly large quantities. Numerous plants have been raised, and the demand for these has been full and constant during the past year.

This is undoubtedly a tree suitable for cultivation, as it yields rubber freely all the year round. It is probably one of the most valuable of our rubber-producing plants. It is, however, with us not a tree that can be planted in the open, as is shown by the numerous specimens growing here. Those exposed to the sun are in the dry season stunted and dwarfed, while those growing under shade are, on the other hand, in a flourishing state; and this feature of growth is also maintained in the various positions in which it has been recently planted in Trinidad and Tobago.

*East India rubber (Ficus elastica)*.—This is a much more hardy plant with us than that previously mentioned. It grows to a large size in the open, and can be readily propagated from cuttings. The rubber it produces is of good quality.

A tree 60 or 70 feet high, found in considerable numbers in the colony, known locally as the balata (*mimusop globex*, is understood to be the botanical name), produces a gum (or milk, as it is called) of some commercial value. Some years ago it was shipped to England, but the authorities, in order to preserve the forests, prohibited the sapping of these trees. The sap was obtained by making a groove down the trunk of the tree into which many small grooves in the shape of a V were made. Through these grooves the sap ran to the bottom of the tree, where it was received in vessels. On being exposed to the atmosphere it became quite consistent and was subsequently moulded into blocks of about 6 inches square. There is a large number of these trees in Manoa, Venezuela (near the disputed boundary line between Great Britain and Venezuela); also in the state of Maturin in Venezuela. More or less of this balata gum or milk has been shipped to Hamburg by Messrs. F. Urich & Son, of Port of Spain, and I would suggest that persons interested in the matter correspond with that firm as to details. The wood of the "balata" is very hard and highly useful for wood work. The gum is considered of less importance, and the expense of extracting it is, proportionate to its value, very considerable.

WM. P. PIERCE,  
*Consul.*

UNITED STATES CONSULATE,  
*Trinidad, November 14, 1890.*

## DUTCH WEST INDIES.

### CURAÇOA.

Caoutchouc or India rubber is not produced here, and the few shoes of that material imported are from the United States.—(L. B. Smith, Consul, Curaçoa, November 24, 1890.)

## SPANISH WEST INDIES.

### CARDENAS.

#### REPORT BY COMMERCIAL AGENT HENRIQUES.

Rubber boots, shoes, cloaks, and hats, also toys, combs, etc., would have good acceptance here if introduced, but up to date these goods are imported into Havana and the dealers here buy from Havana firms. American manufactured rubber goods are appreciated and preferred to the European.

The only suggestion that I can fearlessly offer is for American manufacturers to send good samples and traveling salesmen and show their

goods and deal with the dealers and open up direct trade from the factory with the dealers here, as they not only pay cash, but would save enormous charges to commission houses and Havana houses; and by dealing direct they would buy cheaper and for cash, and the manufacturers would sell more.

SYDENHAM P. C. HENRIQUES,  
*Commercial Agent.*

UNITED STATES COMMERCIAL AGENCY,  
*Cardenas, Cuba, October 16, 1890.*

### SANTIAGO DE CUBA.

#### REPORT BY CONSUL REIMER.

India rubber is neither produced nor manufactured in this consular district. I have made an investigation and find that several species of the ficus family of trees grow here which might be utilized, as some of them, notably the "Maboa" (Latin term not known), give a thick white juice. One disadvantage is that these trees, as nearly all other species, do not grow in groves or forests, but are scattered or mixed. No experiments have been made, and the above statement is based on personal observation.

I give you below statistics of imports of rubber goods during the current year. As all these goods pay by weight it is impossible to determine the exact quantity or quality of articles:

#### *Imports of manufactured rubber into Santiago de Cuba during 1890.*

	Kilos.
From New York—	
Rubber hose .....	714.680
Rubber boots .....	5.200
Rubber nipples and small goods.....	34.050
From Philadelphia (for an American mining company)—	
Rubber hose .....	313
Rubber patking.....	50
From Havre, France—	
Rubber hose .....	242
From Liverpool—	
Rubber boots .....	96
Rubber rings .....	50

It is apparent by these statistics that nearly all rubber goods, such as rubber cloaks, etc., come here from Havana, where they pass the custom-house, and statistics there will be more interesting.

Merchants here prefer the French rubber hose to the American, stating that it wears better; it is sold at 25 per cent above the American manufacture. The selling prices here for American rubber hose are—

$\frac{1}{4}$ inch.....	per yard..	\$0.50
$\frac{3}{8}$ inch.....	do.....	.60
$\frac{1}{2}$ inch.....	do....	.70



1 inch.....	per yard..	\$0.80
1½ inch.....	do.....	.90
1¾ inch.....	do.....	1.25
2 inch.....	do.....	1.50
2½ inch.....	do.....	2.55
3 inch.....	do.....	3.00

Of rubber coats, I believe, more of French manufacture are sold than American. This is no doubt owing to the fact that as these coats are only used for horseback American manufacturers have not yet sent here a coat that is adapted to the saddle. The coat must have a long cape, that will protect not alone the arms and hands, but will also protect the lower limbs from the knee up. With a coat without this cape the saddle invariably, in the heavy rains common here, gets wet. It is my opinion that business could be done, and if some enterprising rubber manufacturer sends some one here with a full line of goods appropriate to the country the trade with the United States may be considerably increased. For further information I give you below a translation of the custom-house tariff on rubber goods:

*Gum elastic or caoutchouc (see drugs).*

Par.		Spanish products.	Foreign products.
216	Gum elastic or caoutchouc worked into plates or belting for machinery, into hose or other analogous objects ..... per kilo..	\$0.098	\$0.261
217	Worked into boots, leggings, seats, life-preservers, bags, or other analogous objects ..... per kilo..	.135	0.380
218	In waterproof coats, worked over cotton textile or linen.....do....	.300	.870
219	The same over woolen fabric.....do....	.450	1.305
220	The same over silk fabric.....do....	.900	2.610
221	Gum elastic, or caoutchouc, or gutta-percha, worked into combs with wide teeth, ordinary combs, small combs, or other adornments for the head, brushes for the teeth, nails, or jewelry, penholders, and other analogous objects, even if metal, is also used, or bone, or other material..... per kilo..	.500	1.450
222	The same in catheters, syringes, small rubber erasers, nippers, syringes, and other analogous objects, on account of weight and mechanism, even if they also contain other material ..... per kilo..	.800	2.320
223	Small wares, cheap rubber jewelry, bijoutry, games, and toys .....	10 per cent ad valorem.	20 per cent ad valorem.

OTTO E. REIMER,  
Consul.

UNITED STATES CONSULATE,  
Santiago de Cuba, November 8, 1890.  
180A—15

## CONTINENT OF ASIA.

---

### CHINA.

*Foochow.*—The rubber tree is not grown in this part of China and I can not learn of any efforts having been made to cultivate it here. Rubber goods are not used by the natives and I can not learn of any being imported from the United States sufficient to be regarded as an article of commerce. There is practically no demand for said goods. Duties are not imposed upon foreign rubber goods. (Samuel L. Gracey, consul, Foochow, December 3, 1890.)

---

*Ningpo.*—There is no trade in, or demand for, rubber goods in this consular district.

A few rubber shoes are sold here, and purchased by the lower classes, although very expensive. They are made on the model of a Chinese shoe in Germany and retailed here for 69 cents, United States gold. The demand for them is very small. It would not be profitable to introduce rubber goods into the Chinese market for some years to come. (John Fowler, consul. Ningpo, 17th, December 1890.)

---

### SHANGHAI.

REPORT BY CONSUL-GENERAL LEONARD.

Any report on this subject coming from the consular district of Shanghai must necessarily be confined to the introduction and importation of manufactures of India rubber, as caoutchouc or India rubber is not a product of this section of China, neither does India rubber enter into the manufactures of this district.

During the year ending 31st December, 1889, there was imported into Shanghai from foreign countries, India rubber valued at \$10,722, rubber goods valued at \$3,647. I am informed that the term "India rubber," as used above, is the designation given by the customs authorities to sheets of rubber of various thicknesses which are used in con-

nection with marine and other engines, and the term "India rubber goods," comprises a variety of manufactured rubber. In both cases there is an import duty of 5 per cent ad valorem.

I am unable to specify the country of origin of these importations, but have been told that the former comes from England, and the latter principally from the United States, as our manufactured goods are considered of superior make to that of other countries.

The only suggestion that I can make for the benefit of American manufacturers desirous of extending their trade in this district is for them, through our established merchants, to find out some use for which Chinese can employ their goods.

I am sure that our merchants have not overlooked this branch of trade, but it is possible that they have not been able to obtain from the manufacturers a cheap line of goods within the means of the Chinese masses.

Cheap rubber garments and shoes made after Chinese models of dress might take with them.

It ought also to be known that the warm damp climate that exists during several months of the year in this part of China has the tendency to soften rubber fabrics.

J. A. LEONARD,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Shanghai, December 5, 1890.*

---

*Tientsin.*—The imports of India rubber goods at this port are of such small quantity that no account of them is made in the published customs reports. I have made special inquiries of the commissioner of customs, and am informed that the total imports of India rubber goods during the present year have amounted to taels 1,800 only. As the trade is so insignificant, and as there are no manufactures of India rubber goods within this consular district, I trust you will excuse me from answering categorically the questions asked in your circular. (William Bowman, consul, Tientsin, December 9, 1890.)

---

## HONGKONG.

REPORT BY CONSUL SIMONS.

There is no production of India rubber in the consular district of Hongkong. The tree grows in the public gardens and upon the lawns of many houses, but it has never been proposed that the cultivation might be profitable from a commercial standpoint, nor does India rubber enter into the manufactures of this district or form an article of commerce.

Concerning the importations of manufactures of rubber with the countries in which they are produced, no statistics are available from which to gather the amounts from each. Letters received from merchants indicate that the bulk comes from England and Germany. While the importations from the United States are limited in quantity the goods compare favorably both in quality and price with those of other countries.

Boots, shoes, and rain coats are in most demand. Technical India-rubber goods manufactured in America are regarded with special favor, but are more expensive than those produced in England and Germany. No duty is imposed on foreign manufactures of any description.

Observations upon the best means of extending the trade of American manufactures of rubber goods implies a consideration of those by which our merchants and manufacturers in general may increase their business in this growing market to which hitherto little attention has been paid. Aside from the sending out of circulars and price lists, the first requisite is an accurate knowledge of the wants of the people and the methods after which they conduct business, to be gained, I should say, only from personal observation.

The general impression that with the high prices paid for raw material and labor our manufacturers are unable to turn out the finished article equal in every respect to that produced in other countries can only be overcome by showing samples of the goods offered. Though not so handicapped, foreign merchants have constantly on hand large supplies of goods and implements which can be seen by buyers, an advantage not to be despised.

The attempts so far by our people to enter this market have not been characterized by the energy displayed in keeping the "home market," which has perhaps become so attractive that they do not care to compete with those who act upon the broader principle—the markets of the world for home products.

The conservatism of the Chinaman, not confined to matters social and governmental and which causes him to adhere long to the economic costumes of his race after having come in contact with those of other people, marks him as a man to be calculated with in the efforts now being made to revolutionize the trade of China, not only by the introduction of articles of foreign manufacturers but the greater enterprise of entering the country with improved machinery by which these articles can be produced from her own raw materials and by her own labor, superintended by a few foreign experts.

Ignorant of many of the conditions surrounding trade with China, with a limited knowledge of the wants of the people or their methods of doing business, and only a general knowledge of what is going forward under the influence of European merchants and manufacturers, any means by which this disadvantage can be overcome will go far toward

advancing the efforts of American manufacturers desirous of extending their trade in the East.

O. H. SIMONS,  
Consul.

UNITED STATES CONSULATE  
Hong Kong, January 20, 1891.

## JAPAN.

REPORT BY VICE-CONSUL-GENERAL SOIDMORE, OF KANAGAWA.

I have to state that India rubber is not a product of this district, and, owing to the climate, the rubber tree is not susceptible of cultivation here. No attempts, so far as I can ascertain, have been made to cultivate it.

The total imports into Japan during the year 1889, of rubber suitable for manufacturing purposes, were as follows: Raw, 689.74 yen; sheet, 21,102.80 yen; total, 21,792.54 yen.

It is impossible to enumerate the various uses to which it was put. The only rubber exported from Japan in 1889 was of foreign origin, and is reported under the head of re-exports, as follows: Sheet, 36.63 yen; ware, 252.96 yen; total, 289.59 yen.

Its destination is not stated. Crude rubber is liable to an import duty of 5 per centum ad valorem.

The imports for all Japan for 1889 were as follows:

	Yen.
Waterproof coats .....	3,805.86
Elastic webbings .....	14,803.66
India rubber:	
Raw .....	689.74
Sheet .....	21,102.80
Ware .....	95,719.40
Total .....	136,121.46
Imports from United States:	
Raw .....	\$331.90
Sheet .....	248.72
Ware .....	6,142.14
Total .....	6,722.76
Great Britain:	
Waterproof coats .....	3,278.10
Elastic webbings .....	11,863.44
India rubber—	
Sheet .....	18,058.12
Ware .....	54,898.94
Total .....	87,598.60

	Yen.
Germany:	
Waterproof coats .....	498.55
Elastic webbings .....	2,630.18
India rubber—	
Sheet .....	1,059.76
Ware .....	14,662.00
Total .....	18,850.49
France:	
Waterproof coats .....	29.21
Elastic webbings .....	639.84
India rubber—	
Sheet .....	1,736.20
Ware .....	19,227.42
Total .....	21,632.67
Belgium .....	755.92
Switzerland, elastic webbings .....	170.20
Italy .....	32.98

The balance is given under head of "other countries."

Rubber and manufactures thereof are subject to an import duty of 5 per centum ad valorem.

American rubber goods are regarded favorably, but their high price militates against them in this market.

I should recommend American rubber manufacturers to correspond with the following American firms at Yokohama for fuller information, viz:

The American Trading Company, The China and Japan Trading Company, Messrs. Walsh, Hall & Company, and Messrs. Frazar & Company.

G. H. SCIDMORE,  
*Vice-Consul General.*

UNITED STATES CONSULATE-GENERAL,  
*Kanagawa, January 28, 1891.*

#### OSAKA AND HIOGO.

REPORT BY CONSUL SMITHERS.

Caoutchouc or India rubber is not a product of this consular district. So far as any information can be obtained, no experiments have been made in this district in the cultivation of rubber trees, plants, or vines. It is not believed, however, that these are susceptible of profitable cultivation anywhere in Japan.

## MANUFACTURES OF INDIA RUBBER.

The imports of India-rubber goods into this consular district for 1889 were as follows:

	Amount.	Value.
	<i>Catties.</i>	<i>Yen.</i>
India rubber, raw .....	None	
India rubber, in sheet .....	3,698	3,971.28
India rubber ware .....		18,841.76

The countries of the origin of the imports into this district are not specified in the customs returns, but are given for the entire country, as follows:

Countries.	Character of goods.	Amount.	Value.
		<i>Catties.</i>	<i>Yen.</i>
United States .....	India rubber, raw .....	284	331.90
	India rubber, in sheet .....	469	284.22
	India rubber ware .....		6,142.14
Great Britain .....	do. ....		54,898.94
	India rubber, in sheet .....	24,829	18,058.12
Germany .....	India rubber ware .....		14,682.00
	India rubber, in sheet .....	852	1,059.70
France .....	India rubber ware .....		19,227.42
	India rubber, sheet .....	2,088	1,736.20
Belgium .....	India rubber ware .....		755.92
Other countries .....	India rubber, raw .....	1,598	357.84

India rubber does not enter into the manufactures of this consular district. Under the head of India-rubber ware the returns do not specify the character of the goods imported.

There is a duty of 5 per cent imposed on all imports of rubber goods.

As a means of extending trade in American rubber manufactures, I would suggest that samples be sent to the commercial museum at Osaka. This large and flourishing institution has just been opened, and contains a special department for exhibiting foreign goods. The enterprise is purely commercial, and a small fee is paid for exhibits.

E. J. SMITHERS,

*Consul.*

UNITED STATES CONSULATE,

*Hiogo, Japan, December 2, 1890.*

## PALESTINE.

REPORT BY VICE-CONSUL CLARK, OF JERUSALEM.

India rubber not being a product of this country, nor of this district, the first part of the subject relating to caoutchouc, or India rubber, in its crude condition can meet with no answer from this place.

As regards the second portion of the subject, I beg to answer as follows: India rubber does not enter into the manufactures of this country.

Imported crude rubber pays, or rather would pay, 8 per cent duty.

Manufactures of rubber in the shape of waterproof cloaks, boots, shoes, belting, also surgical articles, are imported to the amount of \$1,500 to \$1,800 during one year, from France, England, and Germany; none from the United States.

Eight per cent duties ad valorem are imposed on foreign manufactures of rubber.

Sending price lists and samples to some responsible firm at Jerusalem or Jaffa might be expedient to introduce American rubber goods.

HERBERT CLARK,  
*Vice-Consul.*

UNITED STATES CONSULATE,  
*Jerusalem, November 24, 1890.*



# CONTINENT OF AFRICA.

## EGYPT.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

### CAOUTCHOUC.

Caoutchouc, or India rubber, is not produced in Egypt, and there is no export trade in that article.

The following information concerning caoutchouc was communicated to me by a professor who has charge of the botanical garden in Cairo:

Up to the present time no durable experiments have been made in Egypt in the acclimatization of foreign rubber trees or plants, nor in the cultivation of indigenous rubber plants, and it is probable that the climate of Egypt proper is not favorable to the production of that article.

For the growth of the American caoutchouc plant, such as the *Liphonia*, the *Hevea*, and the *Jatropha elastica*, a uniform and somewhat damp climate is necessary. Their cultivation in Egypt would be nearly impossible on account of the periodical dryness and of the sudden changes in the temperature, and even if the plant could be kept alive it would always be sickly and would never attain the growth necessary to produce rubber. The gutta-percha tree, the *Scosandra gutta*, would fare the same way.

The *Ficus elastica*, which produces the caoutchouc in Assam, thrives well enough in that country, but its sap was found to be very poor for rubber.

Trees of central Africa yielding India rubber, a species of the genus *Landolfia*, could not thrive under the climate of Egypt; but they would grow luxuriantly in the Soudan, beyond Khartoum. It would not even be necessary to introduce new plants. It would only be necessary to develop and regulate the cultivation of *Landolfias*, which grow there spontaneously.

I transmit herewith a sample of caoutchouc produced by the *Landolfia* plant in the neighborhood of the lakes.

### MANUFACTURES.

India rubber is not included in the manufactures of Egypt. There is therefore no exportation of manufactured articles of this class and no importation of crude rubber.

It has been impossible, notwithstanding repeated efforts, for me to obtain reliable information with regard to the extent of the importation of manufactures of India rubber into Egypt. It appears, however, that most rubber articles consumed in Egypt are imported from Austria,

England, France, and Germany. Such articles are subject to the usual rate of duty on imports into Egypt, namely, 8 per cent ad valorem computed on the price at the port of discharge.

The chief articles of this nature imported into Egypt are: Tubes, plates, machine packing, and articles used for chemical purposes.

The importation of rubber clothing, boots, shoes, etc., is very small. This can be accounted for in three ways:

Firstly, because there is very little wet weather. Secondly, on account of the continual heat which causes such articles to perish. On this account, also, import orders for rubber are generally very small; and thirdly, because by far the greater number of the lower class of population in Egypt go barefoot nearly all the year round.

I am informed by a dealer that most of the rubber articles imported into Egypt are of an inferior quality. I therefore see no reason why American manufactures of rubber would not be equally successful with those of other countries, unless it were the cost of transportation, which would naturally be more on account of the greater distance.

To introduce our merchandise into Egypt it is essentially necessary to be connected with some enterprising person who is willing to push things with perseverance.

I have been able to obtain the following price lists of an important Berlin manufacturer of India-rubber articles.

I am informed that a discount from 30 to 40 per cent, according to the importance of orders, is made on the prices given.

#### PRICE LISTS.

*Tubes, with very strong linen folds, for sending water under pressure.*

Interior diameter (English inches).	Price per meter. (The numbers below indicate the number of folds.)							Interior diameter (French millimeters).
	1	2	3	4	5	6	8	
1	\$0.25	\$0.36	\$0.49	\$0.62	\$0.78	\$0.94	\$1.30	10
1 1/4	.31	.44	.59	.74	.91	1.09	1.49	13
1 1/2	.37	.51	.69	.86	1.05	1.25	1.69	16
1 3/4	.42	.60	.78	.97	1.19	1.40	1.89	19
2	.49	.67	.87	1.09	1.31	1.56	2.08	22
2 1/4	.55	.75	.98	1.21	1.45	1.71	2.28	26
2 1/2	.69	.94	1.20	1.47	1.78	2.07	2.72	32
2 3/4	.80	1.09	1.40	1.71	2.05	2.39	3.11	38
3	.94	1.27	1.63	1.99	2.36	2.76	3.57	45
3 1/4	1.09	1.46	1.85	2.26	2.69	3.12	4.04	51
3 1/2	-----	1.59	2.01	2.45	2.91	3.37	4.35	57
3 3/4	-----	1.80	2.27	2.78	3.28	3.80	4.88	64
4	-----	1.92	2.44	2.96	3.50	4.05	5.20	70
4 1/4	-----	2.10	2.60	3.16	3.74	4.38	5.52	76
4 1/2	-----	-----	2.92	3.46	4.05	4.75	6.09	83
4 3/4	-----	-----	3.69	3.75	4.41	5.10	6.78	89
5	-----	-----	3.41	4.14	4.87	5.62	7.16	102
5 1/4	-----	-----	-----	4.73	5.56	6.41	8.14	114
5 1/2	-----	-----	-----	5.35	6.01	6.92	8.94	127
5 3/4	-----	-----	-----	-----	6.70	7.71	9.76	140
6	-----	-----	-----	-----	7.15	8.22	10.41	152

The above-mentioned tubes are manufactured to order up to a length of 25 meters, and their prices are in proportion.

*Suction tubes with an inside galvanized iron spiral.*

Interior diameter (English inches).	Price per meter. (The numbers indicate the number of folds.)						Interior diameter (French millimeters).
	1	2	3	4	5	6	
$\frac{1}{8}$	\$0.32	\$0.42	\$0.61	-----	-----	-----	10
$\frac{1}{4}$	.40	.52	.74	-----	-----	-----	13
$\frac{3}{8}$	.47	.61	.85	-----	-----	-----	16
$\frac{1}{2}$	.54	.70	.97	\$1.42	-----	-----	19
$\frac{3}{4}$	.64	.82	1.10	1.54	-----	-----	22
1	.72	.92	1.24	1.70	\$2.22	\$2.79	26
$1\frac{1}{4}$	.90	1.16	1.52	2.06	2.66	3.31	32
$1\frac{1}{2}$	1.05	1.32	1.75	2.38	3.05	3.76	38
$1\frac{3}{4}$	1.32	1.64	2.11	2.85	3.66	4.40	45
2	1.47	1.84	2.40	3.19	4.04	4.92	51
$2\frac{1}{4}$	-----	2.11	2.71	3.56	4.46	5.41	57
$2\frac{1}{2}$	-----	2.40	3.06	4.01	5.01	6.06	64
$2\frac{3}{4}$	-----	2.56	3.29	4.29	5.34	6.45	70
3	-----	2.90	3.66	4.74	6.10	7.00	76
$3\frac{1}{4}$	-----	-----	4.00	5.16	6.36	7.62	83
$3\frac{1}{2}$	-----	-----	4.35	5.60	6.89	8.22	89
$3\frac{3}{4}$	-----	-----	4.80	6.17	7.59	9.05	102
4	-----	-----	-----	6.97	8.56	10.21	114
$4\frac{1}{4}$	-----	-----	-----	7.62	9.26	11.02	127
5	-----	-----	-----	8.41	10.30	12.25	140
$5\frac{1}{4}$	-----	-----	-----	8.97	10.99	13.06	152

The above-mentioned tubes are manufactured up to a length of 25 meters, and their prices are in proportion. The tubes with a plain exterior spiral pay 10 per cent in addition.

*Garden hose.*

Interior diameter.		Price per meter.	
Inches.	Milli-meters.	With two folds.	With three folds.
$\frac{1}{8}$	10	\$0.28	\$0.34
$\frac{1}{4}$	13	.34	.40
$\frac{3}{8}$	16	.40	.46
$\frac{1}{2}$	19	.46	.52
$\frac{3}{4}$	22	.52	.59
1	26	.59	.65
$1\frac{1}{4}$	32	.71	.79

*Tubes made of hemp lined inside with India rubber.*

Interior diameter in milli-meters.	Price per meter.		Interior diameter in milli-meters.	Price per meter.	
	Black India-rubber lining.	Red India-rubber lining.		Black India-rubber lining.	Red India-rubber lining.
13	\$0.50	\$0.57	50	\$1.12	\$1.19
16	.54	.62	54	1.25	1.34
21	.60	.69	58	1.29	1.36
25	.66	.77	62	1.37	1.54
28	.75	.85	66	1.46	1.62
33	.80	.92	71	1.54	1.75
38	.92	1.00	75	1.60	1.87
42	.96	1.04	78	1.67	1.96
46	1.02	1.15			

The above tubes can be manufactured up to a length of 30 meters. They are lined with vulcanized India rubber, and they maintain their suppleness under all circumstances of employment and of temperature.

Tubes made of pure India rubber without linen envelopes for gas conduits, irrigating purposes, etc:

	Per meter.
White India rubber.....	\$1. 25
Red India rubber .....	2. 92
Black patent India rubber .....	4. 87
Tubes with linen folds and outside linen covering:	
Simple, for locomotives and tenders.....	1. 25
With iron spiral for steam under very high pressure .....	1. 30

#### MISCELLANEOUS INDIA RUBBER MANUFACTURES.

India rubber in sheets for joints, lined or not, of whatever thickness, 20 meters long and from 1 to 1.25 meters wide:

Gray India rubber .....	. 75
Red India rubber .....	1. 45

India rubber sheets for manufacturing pump valves, 3.66 meters long and 1.22 meters wide:

For steam pumps—

Dark gray India rubber.....	2. 20
Black and proof against oil .....	2. 50

For pumps for warm and cold water—

Light gray .....	1. 70
Red .....	3. 37

*India rubber straps with very strong cotton folds.*

Width.		Price per meter. (The numbers below indicate the number of the folds.)							
English inches.	Milli-meters.	2.	3.	4.	5.	6.	8.	10.	
1	25	\$0. 27	\$0. 32	\$0. 36	-----	-----	-----	-----	
1½	32	. 35	. 41	. 46	-----	-----	-----	-----	
1¾	38	. 44	. 52	. 56	\$0. 65	-----	-----	-----	
1½	45	. 50	. 59	. 65	. 74	-----	-----	-----	
2	51	. 54	. 65	. 72	. 82	\$0. 90	-----	-----	
2½	57	. 59	. 69	. 79	. 89	1. 01	-----	-----	
2¾	64	. 65	. 76	. 87	. 99	1. 14	-----	-----	
2½	70	. 70	. 82	. 95	1. 06	1. 22	-----	-----	
3	76	. 75	. 89	1. 01	1. 15	1. 31	-----	-----	
3½	83	. 82	. 97	1. 12	1. 25	1. 46	-----	-----	
3¾	89	. 90	1. 06	1. 21	1. 37	1. 57	-----	-----	
3½	95	. 95	1. 11	1. 29	1. 45	1. 66	-----	-----	
4	102	1. 00	1. 17	1. 35	1. 52	1. 75	\$2. 15	-----	
4½	114	-----	1. 35	1. 55	1. 75	2. 01	2. 45	-----	
5	127	-----	1. 50	1. 72	1. 96	*2. 25	2. 74	-----	
5½	140	-----	1. 65	1. 89	2. 14	2. 45	2. 98	-----	
6	153	-----	1. 85	2. 12	2. 41	2. 69	3. 25	\$3. 75	
7	178	-----	2. 15	2. 46	2. 81	3. 10	3. 75	4. 45	
8	203	-----	2. 50	2. 86	3. 25	3. 55	4. 25	5. 13	
. 9	228	-----	2. 77	3. 12	3. 58	4.	4. 75	5. 85	
10	254	-----	3. 07	3. 50	4. 00	4. 45	5. 25	6. 55	
11	279	-----	3. 36	3. 85	4. 43	4. 90	5. 75	7. 25	
12	305	-----	3. 70	4. 20	4. 85	5. 35	6. 25	7. 95	
14	355	-----	4. 25	4. 90	5. 70	6. 25	7. 25	9. 35	
16	406	-----	4. 90	5. 60	6. 55	7. 15	8. 25	10. 75	
18	457	-----	5. 50	6. 30	7. 40	8. 05	9. 25	12. 15	
20	508	-----	6. 37	7	8. 25	8. 95	10. 25	13. 50	

The following statement shows the prices on the Liverpool market of rubber imported from different parts of Africa (taken from an African produce price list dated April 17, 1890):

	Per pound.			Per pound.	
Congo ball.....	\$0.44½	to \$0.47	Liberian .....	\$0.36½	to \$0.41½
Gaboon ball .....	.39	.41	Acera .....	.24	.55
Small tongue .....	.34	.38	Axim and Assinco.....		.47
Bold tongue .....	.40	.43	Cameroons ball .....	.45	.46
Ileke .....	.32	.36	Old Calabar .....	.40½	.42
Small ball .....	.34	.36	Sierra Leone niggers....	.46	.51
Thimbles .....	.45	.47	Gambia niggers.....	.43	.56
Cape Coast and Salt Pond	.38	.44			

LOUIS B. GRANT,  
*Acting Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Cairo, February 13, 1891.*

*Madeira.*—India rubber is not a product of my district. It is not manufactured here in any character. The climate will not permit of its use for clothing. Beyond hose for water purposes and belting for machinery, India rubber is not in use here.—(Thomas C. Jones, consul, Funchal, November 4, 1890.

# AUSTRALASIA.

## NEW ZEALAND.

*REPORT BY CONSUL CONNOLLY, OF AUCKLAND.*

India rubber is not produced or manufactured in New Zealand. The greater part of all the rubber goods imported into this country is manufactured in England, a small proportion only coming from the United States and the Australian colonies. The value of rubber imports during 1889 amounted to \$25,870, viz:

Great Britain .....	\$23, 650
United States .....	1, 545
Victoria (Australia) .....	290
New South Wales (Australia) .....	385
Total .....	25, 870

There is a duty of 20 per cent ad valorem on all kinds of rubber goods, with the exception of the following articles, which are allowed to enter free, viz: India-rubber sheet for engine packing, as N. O. E.; India-rubber soles for tennis shoes, and rubber or gum boots.

The quantity or quality of the goods cannot be ascertained; the value and country whence imported are alone available. The dutiable rubber goods imported from the United Kingdom in 1889 amounted to \$3,200, and from the United States to \$460. India rubber from the undermentioned countries was admitted duty free.

Great Britain .....	\$20, 450
United States .....	1, 085
Victoria .....	290
New South Wales .....	385
	22, 210

I am, however, inclined to believe that the articles coming from Victoria and New South Wales were manufactured in England.

New Zealand importing merchants readily admit that American rubber goods are more durable, much lighter, and give better general satisfaction than the English manufactured article. The reasons given why importers purchase so largely from the British manufacturers are that they (the importers) have always been in the habit of doing so and that their customers appear to be fully satisfied with the British article.

Another reason is that the American manufacturers have not made any effort to introduce their goods into this colony. As to the best methods for introducing American India-rubber manufactures, it is difficult to intelligently advise. This being a British colony, the people are, therefore, fully imbued with that conservatism which is a striking characteristic of the British race. They are slow to accept any innovation on long-established principles, whether they be religious, political, or commercial. I will not say there is a prejudice against American merchandise, but that there is, however, a decided and unmistakable preference for English wares there can be no doubt. The American manufactures that have been successfully introduced into this market are, in nearly every instance, far superior to the British article; otherwise the position could not be maintained. There is an almost insuperable desire on the part of the people to cultivate even closer trade relations with the home country than at present exists.

In proof of this it is only necessary to call attention to the fact that the principal imports from the United States to this colony are such as can not be produced in Great Britain as cheaply. Kerosene, tobacco, canned fruit, and fish constitute the chief articles of commerce between New Zealand and the United States. I may also mention that our mining and agricultural machinery, particularly the latter, is daily gaining in public appreciation.

To favorably introduce American manufactures which would come in direct competition with the manufactures of the United Kingdom requires time and perseverance. The inhabitants, though conservative and in some instances very slow to dispense with old and tried articles of merchandise, yet tenaciously maintain their hold upon new brands when once established in their confidence. Notwithstanding the evident preference given English interests, still, owing to the undoubted superiority of many of our manufactures, there is a boundless field for enterprise and commercial conquest in these vigorous and growing colonies. Success in this respect is, however, wholly dependent on the energy and efforts of our manufacturers and exporters.

First, it is necessary to offer greater encouragement to our shipping interests and establish more frequent communication between these colonies and the United States.

Second, the cultivation of closer commercial intercourse, together with a more thorough knowledge of the requirements of the people. The latter, in my judgment, is imperatively necessary to insure success.

Third, as no man is more capable of acquiring the most necessary information than one who is thoroughly familiar with the details of the trade, I would therefore suggest that the India-rubber manufacturers, either individually or collectively, select a practical man in whom they have confidence, supply him with samples, and send him forth to represent them. It is possible he may not succeed the first time, but, if he is an observant man, he will be able to present his employers with

all the necessary particulars, especially with reference to the demand, price, class, and quality of goods most adapted to the requirements of the Australasian market.

If the American manufacturers have not the necessary goods in stock, they may find it profitable to enter upon the manufacture of the particular class of goods required, and thus open up a new field for their wares, and, perhaps, successfully compete with those who monopolize the India-rubber markets of Australasia at present. In any event, by sending out a competent man the manufacturers will be placed in a position to determine whether they would be able to compete for a greater portion of this trade. Should the India rubber interests conclude the expense of sending an agent to these colonies would be too great, in that case I would respectfully suggest that two or more industries combine and send a competent representative, the expenses to be equally divided among all concerned.

In a word, exporters, manufacturers, and merchants ought to and must do more than procure incomplete consular reports if they would extend their trade with foreign countries. I know of no better way to do this than to commission able, practical business men who can faithfully represent their interests abroad.

JNO. D. CONNOLLY,

*Consul.*

UNITED STATES CONSULATE,

*Auckland, New Zealand, November 29, 1890.*

## QUEENSLAND.

*REPORT BY CONSULAR AGENT HARRIS, OF BRISBANE.*

Some thousands of trees were planted at Mourilyan Harbor, North Queensland, and did, I am informed, remarkably well, and the rubber that was taken from them was valued at a good average marketable price, but before it could be got in any quantity the hurricane of last year so destroyed the place that it was abandoned. I hear, however, that since that time many of the trees have recovered from the effects of that tornado and it is possible cultivation may again be resumed.

Return showing the quantity and value of India rubber and India-rubber goods imported into Queensland during the years 1889 and 1890:

*India rubber.*

From—	1889.		1890.	
	Pkgs.	Value.	Pkgs.	Value.
Great Britain.....	8	£427-£2, 078. 00	9	£163- \$793. 24
New South Wales.....	9	75- 364. 99	13	125- 608. 31
Victoria.....	3	87- 423. 38	2	8- 38. 93
Total.....	20	589- 2, 866. 37	24	296-1, 440. 48



*India-rubber goods.*

From—	1889.		1890.	
	Pkgs.	Value.	Pkgs.	Value.
Great Britain.....	134	£23,543=£17,242.01	79	£21,731=£8,443.91
New South Wales.....	174	1,516= 7,877.61	148	1,427= 6,964.50
Victoria.....	44	322= 1,567.01	9	58= 282.26
France.....			1	50= 287.12
Germany.....	7	207= 1,007.36	11	154= 749.44
United States.....	13	98= 476.92	12	56= 272.52
Total.....	372	5,696= 27,670.91	260	3,485=16,979.75

GEORGE HARRIS,  
*Consular Agent.*

UNITED STATES CONSULAR AGENCY,  
*Brisbane, March 11, 1891.*

## HAWAII.

India rubber is not a product of this kingdom.

The rubber tree is not indigenous, but thrives well in this climate and is cultivated only for shade and for ornament.

There is no rubber gathering in these islands and no capital engaged in its manufacture.

This tree can be cultivated in Hawaii, but it would hardly prove profitable compared with other established products, such as sugar cane, rice and coffee.

From the customs imports for 1889 at Honolulu I extract the following statistics of imports:

Free by treaty:

61½ dozen rubber boots, 24 pairs rubber boots .....	\$214.90
723 pairs boots and shoes.....	511.96
1 bale billing .....	33.28

Dutiable:

34½ dozen coats, 2 dozen suits .....	715.31
124 feet rubber tubing .....	9.60
46,151 feet rubber hose, 3 coils rubber hose, 1 jack rubber hose .....	7,271.60

Add to the above for value of imports at Hilo, Mahukona, and Kahului, say. 2,000.00

Total valuation of ..... 10,756.65

The duty on all rubber goods not embraced in the treaty schedule is 10 per cent ad valorem. American goods are principally used, but the trade is limited to the foreign population.

H. W. SEVERANCE,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Honolulu, November 20, 1890.*

**MOROCCO.**

*REPORT BY CONSUL-GENERAL MATHEWS, OF TANGIER.*

Morocco produces no caoutchouc, or India rubber. There are no manufactures whatever of this article in this country, and rubber goods are not used by the native population. The few rubber goods used by the foreign residents are procured at Gibraltar.

Should rubber goods be imported in to Morocco, the usual duty on all imports would be imposed, viz, 10 per centum ad valorem.

FELIX A. MATHEWS,  
*Consul-General.*

UNITED STATES CONSULATE-GENERAL,  
*Tangier, November 14, 1890.*

# INDEX TO SPECIAL CONSULAR REPORTS, VOL. VI.

[1. Coal and Coal Consumption in Spanish America. 2. Gas in Foreign Countries. 3. India Rubber.]

## 1. COAL AND COAL CONSUMPTION IN SPANISH AMERICA.

[The reports herewith indexed cover the following interrogatories: Whence coal consumed in respective districts is obtained; the amount and kind consumed; the price and ports of delivery; the manner in which business is conducted and by whom, stating the nationality and class of vessels engaged therein, together with such other statistics as may aid American producers to determine as to their ability to enter more largely into the trade; the ascertained and probable extent and value of local coal fields.]

Mexico:	Page.
Chihuahua .....	3
Coahuila, coal measures of .....	10-15
Coahuila, State of .....	63
(Situation, 63; mountains, 64-66; table-lands and hills, 66; prairies, 66-74; notable rivers, 74; climate, 75; mineral region, 75-78; coal, region, 78-80; population and political division, 80; settlement, 81-83; municipality of Saltillo, 83.)	
Guaymas .....	3, 4
Imports, 3; coal measures of .....	4
Mexico, coal deposits of .....	5
Nogales, coal prospects and discoveries .....	7, 8
Nuevo Laredo, coal imports into Mexico .....	8-10
Paso del Norte .....	10
Piedras Negras (coal measures of Coahuila) .....	10-15
Tampico, imports of coal .....	15
Tuxpan .....	15
Central America:	
Costa Rica .....	16
Guatemala .....	16
South America:	
Argentine Republic .....	18-20
(No coal yet found in, 18; shipping, freights, outside charges, business in the hands of the English, vessels in the trade, coaling steamers, 19; how American coal might be introduced; River Plate, 20.)	
Brazil:	
Bahia .....	21
Para and the Amazon Valley .....	22
Pernambuco .....	24
(Coal fields of Brazil, 26.)	
Rio Grande do Sul .....	26-30

South America—Continued.	Page.
British Guiana.....	30-36
Chile.....	36-38
Coquimbo.....	38
Columbia, Republic of:	
Barranquilla.....	39
Carthagena.....	39
Panama.....	40
Uruguay.....	41
Venezuela, coal fields of.....	44-45
La Guayra.....	42
Maracaibo.....	43
West Indies:	
British West Indies;	
Antigua.....	46
Barbadoes, St. Vincent, and St. Lucia.....	46-47
Bermuda.....	48
Jamaica.....	49
Nassau.....	49
Trinidad.....	49-51
Dutch West Indies.....	52
French West Indies, Martinique.....	52
Hayti.....	53
San Domingo.....	54
Spanish West Indies:	
Cuba:	
Cienfuegos.....	55
Matanzas.....	56
Sagua la Grande.....	58
Port Rico.....	58

## 2. GAS IN FOREIGN COUNTRIES.

The subjects treated in these reports are as follows (special interrogatories), in their respective order:

- |   |  |
|---|--|
| 1. Names, locations, and populations of cities using gas. | 8. Price of gas per 1,000 cubic feet.  |
| 2. Name of gas company.                                   | 9. The use of gas stoves for heating and cooking.  |
| 3. Amount of money invested in the industry.              | 10. Wages of employes and hours of labor.  |
| 4. Process of manufacture.                                | 11. Material used in the manufacture of gas, where obtained, and price at the gas-works. |
| 5. Candle-power of gas.                                   |  |
| 6. Approximate annual output.                             |  |
| 7. Number of consumers.                                   |  |

## CONTINENT OF AFRICA.

	Page.
Cape Town.....	89
Egypt.....	89
Morocco.....	90
Sierra Leone.....	90
Zanzibar.....	90

## CONTINENT OF AMERICA.

<b>Dominion of Canada:</b>	<b>Page.</b>
Chatham .....	91
Fort Erie .....	91
Halifax .....	91
Port Sarnia .....	92
St. Stephen .....	93
Toronto .....	93
Winnipeg .....	94
<b>Mexico:</b>	
Mexico City .....	95
Guaymas .....	96
Nuevo Laredo .....	96
Paso del Norte .....	96
Piedras Negras .....	96
Vera Cruz .....	96
<b>Central America:</b>	
Guatemala .....	97
Nicaragua .....	97
<b>South America:</b>	
Argentine Republic .....	98-102
British Guiana .....	102
<b>Brazil:</b>	
Bahia .....	103
Para .....	104
Rio de Janeiro .....	105
Rio Grande do Sul .....	105
<b>Chile:</b>	
Coquimbo .....	106
Iquique .....	107
Talcahuana .....	107
Ecuador .....	108
Peru .....	108
<b>Republic of Colombia:</b>	
Colon .....	109
Panama .....	109
<b>Venezuela:</b>	
Caracas .....	110
Maracaibo .....	111
<b>West Indies:</b>	
<b>British West Indies:</b>	
Leeward Islands .....	111
Nassau .....	112
Danish West Indies .....	112
Dutch West Indies .....	112
French West Indies, Guadeloupe and Martinique .....	113
San Domingo .....	113
<b>Spanish West Indies:</b>	
Santiago de Cuba .....	113

## CONTINENT OF ASIA.

Asiatic Turkey:	Page.
Smyrna and Palestine .....	115
Syria (Beirut) .....	116-118
British India:	
Bombay .....	118
Singapore .....	119
Hongkong .....	119
China:	
Ningpo .....	120
Tientsin .....	120
Japan .....	122
Siam .....	122

## AUSTRALASIA.

Australasia, gas stoves in .....	145-147
New South Wales .....	123-133
Victoria .....	133-136
South Australia .....	136
Tasmania .....	136
New Zealand .....	127-139, 148-150

## CONTINENT OF EUROPE.

Austria-Hungary:	
Bohemia .....	151
Belgium:	
Antwerp .....	152
Brussels district .....	153-155
Denmark .....	155-172
France:	
Bordeaux .....	172-174
Corsica .....	174
Havre .....	175
Limoges .....	175-177
Loire, the (St. Etienne, Grenoble, Le-Puy, Issoire, Tullins, Rive de Gier) .....	177-180
Lyons district .....	181, 182
Marseilles .....	182
Nice, Cannes, and Mentone .....	183
Northern France .....	184-199
Paris .....	200-202
Rheims district .....	203-208
Germany:	
Berlin district .....	209-211
Chemnitz .....	212
Cologne .....	212
Crefeld district .....	213
Dresden district .....	214
Dusseldorf .....	215
Frankfort-on-the-Main .....	216-218
Hamburg district .....	219-224
Mayence district .....	224-228
Greece .....	229
Holland .....	229-234

Italy:	Page.
Rome .....	234-242
Caltanissetta .....	243
Catania .....	243
Florence .....	244
Genoa .....	245
Girgenti .....	245
Leghorn, Carrara, and Massa .....	246
Marsala .....	247
Palermo .....	247
Trapani .....	248
Russia .....	249-261
Spain:	
Cadiz .....	261-262
Sweden and Norway:	
Norway .....	263-265
Sweden .....	265-266
Switzerland:	
Berne .....	266, 267
Geneva district .....	267, 268
Horgen district .....	269-271
St. Gall district .....	271-273
Zurich district .....	273-277
Turkey:	
Constantinople .....	277, 278
United Kingdom, gas undertakings in .....	278
Gas industry of .....	280-285
English coal fields and water gas .....	285-298
Public ownership of works in England .....	289-293
England:	
Birmingham district .....	293-296
Bradford district .....	296-300
Kidderminster .....	300
Manchester district (Rockdale, 302; Manchester, 304; Halford, 305; Oldham, 306; Bolton, 307; Preston and Bury, 308; Stockport, 309) .....	301-309
Newcastle-upon-Tyne .....	309
Nottingham district .....	310-311
Sheffield .....	312
Southwest of England (Bristol district) .....	312-319
West Riding of Yorkshire (Leeds, 320; Wakefield, 322; Batley, 323; Dewsbury, 325; Pontecraft, 325; Knaresboro, 325; Ackworth, etc., 326) .....	320-327
Scotland:	
Edinburg and Leith .....	327-330
Glasgow district (Glasgow, 330, 331; Greenock, 332; Dumbarton and Rothesay, 333; Airdrie and Coatbridge, 334; Motherwell, 335) .....	330-335
Ireland:	
Dublin district .....	336-340
North of Ireland .....	341-343
South of Ireland .....	343, 344
Gibraltar .....	345
Malta .....	345

## MISCELLANEOUS.

(Subjects not embraced by the "special interrogatories" sent out by the Department.)	Page.
Carcel lamp .....	118, 194
Coal fields:	
Australasia .....	139-143
England .....	285
Electric lights .....	91, 95, 96, 113, 174
Gas stoves in Australasia, illustrations .....	145
introduction into France .....	184
industry of Great Britain .....	280
naphtha, in Russia .....	260
petroleum, in Russia .....	259
public ownership of gas works in England .....	289
water, in England .....	285
Russia .....	258
undertakings of the United Kingdom .....	279
belonging to local corporations in United Kingdom .....	279
Heating furnaces with coke, coke dust, etc. ....	191

## CONSULS REPORTING.

	Page.		Page.
Adams, Lyell T., Horgen .....	269	Edwards, W. H., Berlin .....	209
Adamson, Thomas, Panama .....	109	Emmet, W. C., Smyrna .....	115
Baker, E. L., Buenos Ayres .....	98	Fairfield, Edward B., Lyons .....	181
Bartlett, Charles, Guadeloupe .....	113	Farrar, J. S., Port Sarnia .....	92
Battazzi, Eugenio, Girenti .....	245	Fletcher, James, Genoa .....	245
Bennington, Lebbeus O., Rio Grande do Sol .....	105	Folsom, Benjamin, Sheffield .....	312
Blake, Evans, Crefeld .....	213	Fry, Wakefield G., Halifax .....	91
Birch, John M., Nagasaki .....	122	Gade, Gerhard, Christiania .....	263
Bissinger, Erhard, Beirut .....	116	Garesché, William A., Marti- nique .....	113
Bode, H. E., Bombay .....	118	George, N. J., Charlottetown .....	93
Boer, W. B., Amsterdam .....	229	Gillman, Henry, Jerusalem .....	115
Bourn, Augustus O., Rome .....	254	Goodnow, A. C., St. Stephen .....	93
Bowman, William, Tientsin .....	120	Grierson, J., Coquimbo .....	106
Bradley, William Harrison, Nice .....	183	Griffin, G. W., Sydney .....	122
Brent, A. M., Callao .....	109	Griffin, Walter T., Limoges .....	175
Brown, L. W., Glasgow .....	330	Grinnell, William F., Manches- ter .....	301
Bruce, Wallace, Leith .....	327	Guenther, Richard, Mexico City .....	95
Burke, David N., Bahia .....	103	Hawes, John B., Reichenberg .....	151
Carroll, Philip, Palermo .....	247	Hemmick, Roland J., Geneva .....	267
Catlin, George L., Zurich .....	273	Hill, E. D., Montevideo .....	109
Child, Jacob T., Bangkok .....	122	Hoff, Joseph D., Vera Cruz .....	96
Clayton, Robert, Para .....	104	Hollis, George F., Cape Town .....	89
Connolly, John D., Auckland .....	148	Hosmer, James R., Guatemala .....	97
Crawford, J. M., St. Petersburg .....	249	Jackson, Chester, Antigua .....	111
Damiani, Simon, Bastia .....	174	Jarrett, John, Birmingham .....	293
Delille, John D .....	312	Jones, John D., Dresden .....	214
Diller, Isaac R., Florence .....	244	Johnson Charles E., Hamburg .....	224
Dockery, O. H., Rio de Janeiro .....	105		



	Page.		Page.
Jouve, W. N., Toulon.....	203	Sampson, A. J., Paso del Norte ..	96
Keedy, Samuel H., Rheims.....	203	Schuyler, Eugene, Cairo.....	89
Knowles, Horace G., Bordeaux..	172	Simpson, Thomas, Puerto Plata..	113
Lyall, J., Singapore.....	110	Smith, James H., Mayence.....	224
McKim, John L., Nottingham ..	310	Smith, J. B., Curaçoa ..	112
McLain, Thomas J., Nassau ..	172	Smyth, William I., Huddersfield..	289
Malmros, Oscar, St. Etienne ..	177	Snowden, A. Lowden, Athens....	229
Man, Earnest A., Gothenburg ..	285	Sprague, Horatio I., Gibraltar ..	345
Marrone, Ignacio, Trapani.....	248	Stalker, Robert, Tangiers.....	90
Mason, Frank H., Frankfort-on-		Steuart, John H., Antwerp.....	152
the-Main .....	216	Sutton, Warner P., Nuevo La-	
May, Corns., Sierra Leone.....	90	redo.....	96
Merriam, J. W., Iquique.....	107	Sweeney, Z. T., Constantinople ..	277
Merritt, Henry F., Chemnitz.....	212	Taylor, James W., Winnipeg....	94
Morton, James, Kidderminster..	300	Tibbets, John A., Bradford.....	296
Partello, D. J., Dusseldorf.....	215	Trail, Charles R., Marseilles....	183
Peters, Thomas F., Ningpo.....	120	Turner, Mortimer H., St. Thomas	
Piatt, John J., Cork.....	343	(West Indies).....	112
Plumacher, E. H., Maracaibo ..	111	Turner, Robert W., Cadiz.....	261
Pope, Charles R., Toronto.....	93	Van Ingen, John T., Talcahuano ..	107
Pratt, Seth A., Zanzibar .....	90	Verderame, Vincent, Catania....	243
Pugh, Horace C., Newcastle-		Vifquasin, Victor, Colon.....	109
upon-Tyne.....	309	Walthal, W. T., Demerara .....	102
Rathbone, J. L., Paris.....	200	Wamer, William D., Cologne....	212
Rayson, George, Marsala.....	247	Washburn, John D., Berne.....	286
Reid, A. J., Dublin.....	336	Webster, W. A., Chatham.....	91
Reimer, Otto E., Santiago de		Whelan, James, Fort Erie.....	91
Cuba .....	113	Wigfall, F. H., Leeds.....	280, 285
Reinberg, Martin, Guayaquil....	108	Willard, A., Guaymas .....	96
Rice, William T., Leghorn.....	246	Williams, Charles P., Rouen .....	184
Robertson, W. Henry, St. Gall ..	271	Williams, Oscar F., Havre.....	175
Roosevelt, George W., Brussels..	153	Willis, Charles R., Managua....	97
Ruby, Daniel G., Belfast.....	341	Withers, R. E., Hongkong.....	120
Ryder, Henry B., Copenhagen ..	155	Worthington, John, Malta.....	345

### 3. INDIA RUBBER.

#### PART I.—THE RUBBER TREE.

[The reports in answer to the Department interrogatories concerning the rubber tree cover the following phases of the subject: (a) The tree or vine yielding the caoutchouc or rubber; (b) the manner of conducting the business and the process of gathering the rubber; (c) as to whether American capital is employed in the business; (d) exports of crude rubber and its destination; (e) export duty; (f) the natural supply and the exhaustion thereof; (g) the cultivation of the rubber tree or vine.]

#### CONTRIBUTORS.

	Page.
Adamson, Thomas, consul-general, Panama.....	412
Baggs, George T., commercial agent, Newcastle, New South Wales.....	446
Baker, E. L., consul, Buenos Ayres.....	375
Bannister, Ed., vice-consul, St. Paul de Loando.....	434
Brenning, R. J., vice-consul, Batavia, Java.....	428

	Page.
Burke, David N., consul, Bahia.....	394
Child, C. J., consul-general, Bangkok .....	
Crawfords, J., esq., Leon, Nicaragua .....	367
Craft, C. I., consul, Carthagena, Colombia.....	404
Drayton, John, consul, Tuxpan .....	357
Eilbracht, A. H., vice-consul, Padang, Sumatra .....	429
Girard, Michael, consular agent, Frontera .....	355
Griffin, G. W., consul, Sydney, New South Wales.....	438
Guenther, Richard, consul-general, Mexico.....	351-353
Isaacs, Walter L., esq., Colon .....	410
Kerbey, Joseph O., consul, Para (Amazon Valley, 3 reports) .....	379-394
Kerbey, Joseph O., consul, Peruvian rubber forests.....	414
Kimberly, Samuel, consul-general, Guatemala .....	361
Sorsby, William B., consul-general, Guayaquil .....	378
McNulty, M. C., consular agent, Cerro de Pasco .....	354
Mackey, Beckford, consul, San José, Costa Rica .....	360
Merrill, Samuel, consul-general, Calcutta .....	416, 423
Morey, W., consul, Colombo, Ceylon .....	425
Mott, D. G., esq., Colon .....	411
Newell, William, consul, Managua .....	362
Nickeus, Johnson, consul, Barranquilla .....	397
Quinby, F. A., consular agent, San Benito .....	356
Ropes, E. D., jr., consul, Zanzibar .....	436
Thompson, Edward H., consul, Merida, Yucatan .....	358
Sims, W. E., consul, Colon .....	407
Webb, Alex. R., consul, Manila .....	30
Wildman, Rounsevelle, consul, Singapore.....	425
Wyndham, William, acting consul, Paramaribo.....	375

## REPORTS.

## AMERICA:

Mexico.....	351-353
Cerro de Pasco.....	354
Frontera .....	355
San Benito.....	356
Tuxpan .....	357
Yucatan .....	358
Central America:	
Costa Rica .....	360
Guatemala .....	361
Nicaragua.....	362-366, 367-374
South America:	
Argentine Republic .....	375
Dutch Guiana .....	375-377
Ecuador.....	377, 378
Brazil:	
Amazon Valley.....	379-394
Bahia .....	394-397
Colombia:	
Barranquilla .....	397-404
Carthagena .....	404-407
Colon .....	407-412
Panama .....	412-414
Peru .....	414, 415

ASIA:

British Asia:	Page.
India.....	416-422
Burmah.....	423-425
Ceylon.....	425
Straits Settlements.....	425-428
Dutch East Indies:	
Java.....	428
Sumatra.....	429
Siam.....	430
Spanish Possessions:	
Philippine Islands.....	430-433

AFRICA:

St. Paul de Loando.....	434-436
Zanzibar.....	436-438

AUSTRALASIA:

New South Wales.....	438-446
Newcastle.....	446, 447

PART II.—RUBBER MANUFACTURES AND TRADE.

CONTRIBUTORS.

Angier, Alton, consul, Rheims.....	477
Atwell, W. R., commercial agent, Roubaix.....	477
Beckwith, Henry W., consul, Bermuda.....	566
Bedell, Ossian, consul, Fort Erie.....	549
Bennett, H. D., vice-consul, Nantes.....	465
Bird, Winfield S., consul, La Guayra.....	564
Black, William J., consul, Nuremberg.....	498
Blake, Evans, consul, Crefeld.....	482
Bowen, Herbert W., consul, Barcelona.....	514
Bowman, William, consul, Tientsin.....	573
Bradford, John S. consul, Antigua.....	566
Bradley, William Harrison, consul, Nice.....	416
Brown J. W., consul, Glasgow.....	545
Bruce, Wallace, consul, Leith.....	542
Carroll, Philip, consul, Palermo.....	506
Catlin, F. W., consul, Munich.....	494
Catlin, George L., consul, Zurich.....	520
Catlin, John R., consular agent, Huelva.....	514
Clark, Herbert, consul, Jerusalem.....	577
Connolly, John D., consul, Auckland.....	584
Crawford, J. M., consul-general, St. Petersburg.....	508
Danforth, James R., consul, Liege.....	461
Dickson, Almar F., consul, Gaspé Basin.....	549
Diller, Isaac B., consul, Florence.....	503
Dockery, O. H., consul-general, Rio de Janeiro.....	561
Edwards, W. H., consul-general, Berlin.....	494
Fechét, Eugene O., consul, Piedras Negras.....	560
Fletcher, James, consul, Genoa.....	503
Folsom, Benjamin, consul, Sheffield.....	548
Fowler, John, consul, Ningpo.....	572
Frye, Wakefield G., consul-general, Halifax.....	550

	Page
Gardner, Walter E., consul, Rotterdam .....	500
Gifford, George, consul, Basle .....	516
Goldschmidt, Julius, consul-general, Vienna .....	451
Gracey, Samuel L., consul, Fuchua .....	572
Grant, Louis B., acting consul-general, Cairo .....	579
Grierson, J., consul, Coquimbo .....	562
Griffin, Walter T., commercial agent, Limoges .....	473
Grinnell, William F., consul, Manchester .....	525
Hale, I. C., consul, Charlottetown .....	552
Harris, George, consular agent, Brisbane .....	587
Hartigan, James F., consul, Trieste .....	455
Hawes, John B., commercial agent, Reichenberg .....	454
Hayden, Joseph Edward, consul, Breslau .....	481
Hayne, James B., vice-consul, Havre .....	467
Heath, Charles, consul, Catania .....	502
Helmke, William, vice-consul, Chihuahua .....	557
Henriques, Sydenham, P. C., commercial agent, Cardenas .....	569
Holloway, W. J., consul, Stratford .....	554
Hubbard, Daniel B., consul, Annaberg .....	481
Hunt, Loton S., consul, Guelph .....	550
Johnson, Charles E., consul, Hamburg .....	490
Jones, Thomas C., consul, Madeira .....	583
Joslyn, Charles D., consul, Windsor, Ontario .....	556
Leonard, H. Z., consul, London, Ontario .....	550
Leonard, J. A., consul-general, Shanghai .....	573
Loomis, Francis B., commercial agent, St. Etienne .....	463
Mason, Frank H., consul-general, Frankfort-on-the-Main .....	487
Merriam, J. W., consul, Iquique .....	563
Mathews, Felix A., consul-general, Tangier .....	588
New, John C., consul-general, London .....	346
Osborne, John B., consul, Ghent .....	461
Pace, Samuel D., consul, Port Sarnia .....	552
Palmer, Aulick, consul, Dresden .....	484
Partello, D. J., consul, Dusseldorf .....	484
Pepper, George W., consul, Milan .....	505
Piatt, John J., consul, Cork .....	535
Pierce, William P., consul, Trinidad .....	568
Plumacher, E. H., consul, Maracaibo .....	565
Pope, Charles R., consul, Toronto .....	554
Preston, William S., consul, Cognac .....	467
Rawicz, Joseph, consul, Warsaw .....	512
Reid, Alex. J., consul, Dublin .....	536
Reid, James D., commercial agent, Dunfermline .....	536
Reimer, Otto E., consul, Santiago de Cuba .....	570
Rice, William T., consul, Leghorn .....	505
Robertson, W. Henry, consul, St. Gall .....	518
Roosevelt, George W., consul, Brussels .....	457
Ryder, Frederick M., consul, Quebec .....	554
Ryder, Henry B., consul, Copenhagen .....	462
Sampson, A. J., consul, Paso del Norte .....	559
Seidmore, G. H., vice-consul-general, Kanagawa .....	575
Severance, H. W., consul-general, Honolulu .....	587
Sherman, Thomas H., consul, Liverpool .....	544

	Page.
Simons, O. H., consul, Hongkong.....	573
Smithers, E. J., consul, Osaka and Hiogo.....	576
Smith, L. B., consul, Curaçoa.....	569
Steuart, John H., consul, Antwerp.....	456
Sutton, Warner P., consul-general, Nuevo Laredo.....	557
Sweeney, Z. T., consul-general, Constantinople.....	523
Trail, Charles B., consul, Marseilles.....	473
Turner, R. W., consul, Cadiz.....	513
Twitchell, M. H., consul, Kingston, Ontario.....	550
Wamer, William D., Consul, Cologne.....	482
Wigfall, F. H., consul, Leeds.....	537
Wilbor, J. B., vice-consul-general, Lisbon.....	508
Willard, A., consul, Guaymas.....	560
Williams, Charles P., consul, Rouen.....	478
Winter, John F., consul, Mannheim.....	492
Young, Edward, consul, Windsor, N. S.....	555
Zeigler, S. B., consul, Aix-la-Chapelle.....	480

## REPORTS.

## Europe:

Austria-Hungary.....	451-454
Reichenberg.....	414
Trieste.....	455
Belgium.....	456-460
Ghent.....	461
Liege.....	461
Denmark.....	462
France.....	463, 464
Britanny.....	465-467
Cognac.....	467
Havre.....	467-472
Limoges.....	473
Marseilles.....	473-476
Nice.....	476
Rheims.....	477
Roubaix.....	477
Rouen.....	478
Southwest France.....	478, 479

## Germany:

Aix-la-Chapelle.....	480
Annaberg.....	481
Breslau.....	481
Cologne.....	482
Crefeld.....	482, 483
Dresden.....	484
Dusseldorf.....	484-486
Frankfort-on-the-Main.....	487-490
Hamburg.....	490-492
Mannheim.....	492, 493
Munich.....	494
North Germany.....	494-496
German rubber trade, 1800.....	496, 497
Nuremberg.....	498
German tariff on rubber.....	499

## Europe—Continued.

	Page
Holland .....	500-502
Italy (duties on rubber) .....	502
Catania .....	502
Florence .....	503
Genoa .....	503-505
Leghorn .....	505
Milan .....	505
Palermo .....	506, 507
Russia .....	508-511
Poland .....	511
Spain (duties, 511):	
Andalusia .....	511-514
Barcelona .....	514-516
Switzerland:	
Basle .....	516-518
St. Gall .....	518-520
Zurich .....	520-523
Turkey .....	523, 524
United Kingdom .....	525-535
Cork .....	535
Dublin .....	536
Dunfermline .....	536
Leeds .....	537-542
Leith .....	542, 543
Liverpool .....	544
Glasgow .....	545
London .....	546, 547
Manchester .....	548

## AMERICA.

## Canada:

Fort Erie .....	549
Gaspé Basin .....	549
Guelph .....	550
Kingston .....	550
London .....	550
Nova Scotia .....	550, 551
Port Sarnia .....	552
Prince Edward Island .....	552
Quebec .....	553
Stratford .....	554
Toronto .....	554
Windsor, Nova Scotia .....	555
Windsor, Ontario .....	556

## Mexico:

Chihuahua .....	557
Nuevo Laredo .....	557-559
Paso del Norte .....	559
Piedras Negras .....	560
Sonora .....	560

## Brazil:

Rio de Janeiro .....	561
----------------------	-----

AMERICA—Continued.

	Page.
Chile:	
Coquimbo.....	562
Iquique.....	562
Uruguay.....	563
Venezuela:	
La Guayra.....	564
Maracaibo.....	565
West Indies:	
British:	
Bermuda.....	566
Leeward Islands.....	566, 567
Trinidad.....	568
Dutch:	
Curaçoa.....	569
Spanish:	
Cardenas.....	569
Santiago de Cuba.....	570, 571

ASIA.

China:	
Foochow.....	572
Ningpo.....	572
Shanghai.....	572
Tientsin.....	573
Hongkong.....	573-575
Japan.....	575
Osaka and Hiogo.....	576
Palestine.....	577

AFRICA.

Egypt.....	579-583
Madeira.....	583
Morocco.....	588

AUSTRALASIA.

New Zealand.....	584-586
Queensland.....	587
Polynesia:	
Hawaii.....	587

